



# **23<sup>nd</sup> International Congress on Pediatrics**

**&**

## **9<sup>th</sup> Congress on Pediatrics Nursing**

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## Cardiology

### Physiologic mechanisms of heart rates in infants and newborns

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**Background:** To determine heart rate in infants, we palpate the brachial or femoral artery, count pulsations of the anterior fontanel, or auscultate the heart. A normal pulse rate indicates that the heart is functioning properly. A newborn's pulse rate is the number of times his heart beats per minute. This rhythmic beating occurs each time the ventricle of the heart contracts to pump blood through the cardiovascular system. The brachial pulse, which runs down the middle of the upper arm, and the pulse at the base of the umbilical cord are the best sites for checking a newborn's pulse. The umbilical pulse is accurate even after clamping and cutting. Children's heart rate varies with age. In general, the heart rate in infants and children varies more with activity and fever than in adults. Heart rate in 1 to 5 month infants is between 204±17 and 105±13 per minute. In infants with 6 to 12 months of age, the heart rate is between 187±19 and 101±15 per minute. The heart rate in toddlers is between 177±17 and 66±10 per minute and in school children is between 158±24 and 54±6 per minute.

**Discussion:** The rate of the pulse is observed and measured by tactile or visual means on the outside of an artery and is recorded as beats per minute or BPM. The pulse may be further indirectly observed under light absorbance of varying wavelengths with assigned and inexpensively reproduced mathematical ratios. Resting heart rates that are consistently high (tachycardia) may indicate a problem and in this case the nurse should consult a health care provider.

**Conclusion:** Several pulse patterns can be of clinical significance such as pulses alternant which is an ominous medical sign that indicates progressive systolic heart failure; Pulses bigeminus which indicates a pair of hoof beats within each heartbeat; Pulses bisferiens that is an unusual physical finding typically seen in patients with aortic valve diseases; Pulses tardes and parvus which means a slower than normal rise in the tactile pulse caused by an increasingly stiff aortic valve; Pulses paradoxes that is chiefly governed by proper opening and closure of the aortic and pulmonary valves of the heart.

**Keywords:** physiology, heart rate, infants, newborns

### Birth weight and prevalence of hypertension in childhood

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**Background:** Limited data are available from Iranian children regarding the profile of birth weight and hypertension (HTN) in childhood. This study aimed to investigate the association of birth weight and hypertension among children in elementary schools.

HTN in childhood increases the prevalence of metabolic syndrome and non-communicable diseases in adulthood.

**Methods:** In a cross sectional study, demographic dietary and physical activity data as well as anthropometric, blood pressure, birth weight and waist circumference (wc) were obtained from a sample of 1184 healthy school children (625 girls and 559 boys) attending 5th grade in elementary school in Tehran from 27 schools. We used a stratified random cluster sampling method to select the children. Hypertension is defined as average SBP /or DBP that is ≥95th percentile for gender, age and height on ≥3 occasions.

**Findings:** The overall prevalence of LBW in these school children was 13.5%. Overweight and obesity were more prevalent among children with LBW (17.5% vs. 3%, p<0.0001). Results of logistic regression showed that evidence of HTN was more in children that born with weight less than 2500 gram (27.5% vs 11.8% p<0.0001).

**Conclusion:** This study showed that hypertension was common in children that born with low birth weight (< 2500 gr). The results suggest the need for greater public awareness of HTN and prevention programs on childhood obesity and HTN.

**Keywords:** obesity, childhood, hypertension, low birth weight

### Screening of myocarditis with cardiac troponin-I in hospitalized children for respiratory viral infection

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**Background:** Myocarditis is an uncommon, potentially life-threatening disease that presents with a wide range of symptoms in children and adults. Viral infection is the most common cause of myocarditis. The diagnosis is usually made based on clinical presentation and noninvasive imaging findings. The incidence of myocarditis in children is uncertain because patients with minor symptoms can remain undiagnosed. The aim of this study is screening all children who are hospitalized for an acute respiratory infection with troponin-I (TnI) that would reveal myocarditis cases and performed a prospective screening study.

**Methods:** Troponin-I( TnI ) measurement was performed in all children that hospitalized for acute respiratory infection, If TnI value was above the normal limit (0.06 microg/L), electrocardiogram (ECG) and echocardiography were performed. TnI measurements were repeated at next 24 hours. CXR was performed in all cases.

**Findings:** 56 children (between 5 to 36 months) with acute respiratory infection were screened during the autumn and winter 2010. TnI was above the normal range (0.06 microg/L) in 3 children without any signs of myocarditis in ECG or echocardiography.

**Conclusion:** The incidence of myocarditis during viral infections is low and a routine TnI screening for asymptomatic myocarditis is not useful, but myocarditis should be considered in any case of acute respiratory infection especially in younger age.

**Key Words:** children, myocarditis, troponin-I, viral infection

## Arrhythmic complications of mitral valve prolapse

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**Background:** Mitral valve prolapse (MVP) is one of the most common causes of mitral regurgitation and of congenital valvular heart diseases in adults. Many patients with the diagnosis of this disorder present with palpitations and evidence of atrial or ventricular arrhythmias. These patients are also at increased risk of sudden cardiac death (SCD) compared to the general population, but the exact incidence of the condition is unknown. SUDDEN CARDIAC DEATH: Sudden cardiac death (SCD) in patients with MVP is usually due to ventricular fibrillation, but the relation to MVP is uncertain. The incidence of SCD may be higher in patients with redundant mitral valve leaflets and in those who have symptoms such as palpitations, chest pain, and dyspnea. In addition, risk may be higher in those with a flail leaflet and severe mitral regurgitation. Additional risk factors were associated with an increased risk of SCD are as follow: History of syncope or near syncope, Prolonged QT interval or inferolateral repolarization abnormalities, Frequent or complex ventricular premature beats, Prolapse of both the anterior and posterior mitral valve leaflets, Mitral regurgitation In the individual patient with MVP. There appears to be no strong predictors of SCD other than a prior cardiac arrest or sustained VT. Among patients with MVP, SCD appears to be more common in patients with chordal rupture resulting in a flail mitral leaflet, particularly those treated conservatively.

**Participation in sports:** Regular exercise is encouraged in most patients with MVP, particularly those who are asymptomatic. An athlete with MVP in sinus rhythm with mild to moderate or less mitral regurgitation, sinus rhythm, normal left ventricular size and function and normal pulmonary artery pressures can participate in all competitive sports and high dynamic training unless there are features placing the individual at high risk for sudden death. High risk features include the following: A history of syncope associated with documented arrhythmia, A family history of MVP-related SCD, Sustained or repetitive and nonsustained supraventricular tachycardia or frequent and/or complex ventricular tachyarrhythmias on ambulatory Holter monitoring, Severe mitral valve regurgitation, A prior embolic event or Left ventricular systolic dysfunction. If any of these is present, activity should be restricted to low intensity competitive sports only.

**Keywords:** mitral valve prolapse, arrhythmia, complications

## Ablation therapy for pediatric arrhythmias; the first Iranian academic report

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**Background:** Ablation techniques for pediatric arrhythmias have significantly progressed in the past

decade in the world; however, Iranian pediatricians are less familiar with this procedure and its results.

**Methods:** since April 2009, eighty two catheter ablations were done for children younger than 14 years of age at Shaheed Rajaie Heart center (affiliated to Tehran University of Medical Sciences). The ablation techniques, results, and complications were evaluated. Abolishing the arrhythmia source by the end of procedure was considered as success. Recurrences before hospital discharge and those thereafter were named early and late recurrences, respectively.

**Findings:** A total of 82 catheter ablations were performed for 79 patients (multiple ablations for few cases). Of them 77 (94%) procedures were successful. The success rate was significantly higher in the patients with Atrio-Ventricular Nodal Reentrant Tachycardia (AVNRT). In all early unsuccessful cases arrhythmia acuity was attenuated; two cases (both with accessory pathways) never experienced any further attack without any drug and the remainder three (two Permanent Junctional Reciprocating Tachycardia and one uncontrolled Ventricular Tachycardia) were controllable with light anti-arrhythmic drugs. Of 73 patients who continued follow up program, 4 (5%) cases experienced recurrence; the recurrence rate was inversely dependent on the patients' body size (p value<0.05). Only one case was complicated with a transient complete heart block. There was no mortality.

**Conclusion:** Ablation therapy is an effective and relatively low-risk method for pediatric arrhythmia. The recurrence and complication rates are similar to those reported in adults. Considering our results and the previous reports, pediatric patients with serious arrhythmia should not be deprived from ablation and should not be exposed to long-term toxic drugs.

**Keywords:** arrhythmias, cardiac, ablation, children

## Interventional therapies for Superior vena cava syndrome in children: literature review and report of endovascular stent implantation in three cases

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**Background:** When venous return through superior vena cava is hampered by external or internal obstruction, venous congestion of upper part of the body happens that is referred to as superior vena cava syndrome. Superior vena cava obstruction occurs due to a variety causes in children including tumors, longstanding indwelling catheters for dialysis, pacemaker lead in superior vena cava, irradiation or thrombosis. Signs of SVCS are swelling of the face and upper extremities. Collateral veins of the upper extremity may be also visibly dilated. Symptoms may include shortness of breath, visual impairment, headache, cough, hoarseness or even change in mental status. For a long time, surgery has been the mainstay of the treatment. Recently endovascular stents has been reported as useful alternative therapeutic modality to relieve SVCS in adults. However, there are still very few reports of endovascular stenting to treat SVCS in children.

**Methods:** This is the report of three cases of SVC syndrome in whom the obstruction was successfully relieved by stent implantation. One was a six-year-old boy after surgical correction for partial anomalous pulmonary venous return and two other were fourteen-year-old and one-year old boys who presented with SVC syndrome after longstanding indwelling catheters. In all cases balloon-expandable stents were implanted in the superior vena cava.

**Findings:** After stent implantation the stenosis was relieved on angiography and the pressure gradient was abolished. Symptoms of facial swelling and/or prominent venous collateral vessels disappeared in all shortly after the procedure. In one case, the stent fractured at the end of the procedure but fortunately no stent displacement or adverse event occurred.

**Conclusion:** Endovascular stenting is a suitable treatment with rapid response and long-term benefits to relieve SVCS secondary to internal obstruction due to thrombosis or surgically-induced stenosis in children.

**Key Words:** Endovascular stenting, superior vena cava syndrome, children

## Endocrinology and Metabolic Disorders

### The effects of combination of zinc and vitamin A supplementation on serum fasting blood sugar (FBS), insulin, apoprotein B and apoprotein A-I in childrens with DMTI

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**Background:** There is accumulating evidence that shows the metabolism of zinc and vitamin A are altered in diabetes mellitus type I (DMTI), thus the present study was conducted to evaluate the effects of combination of zinc and vitamin A supplementation on serum fasting blood sugar (FBS), insulin, apoprotein B and apoprotein A-I in children with DMTI.

**Methods:** Forty-eight children with at least 2 years of DMTI history, without any metabolic condition or medicine intake with insulin treatment, participated in a randomized double-blind clinical trial for 12 weeks. They were divided into zinc and vitamin A (VAZ)- supplemented (10 mg elemental zinc per day and one-half of a 25,000 IU vitamin A tablet every other day) and/or placebo groups after matching for sex, age and DMTI duration. Nutrient intake was estimated using 24 h recall and was analyzed by food processor program. Serum apoproteins B and A-I, FBS and insulin levels were determined at the beginning and end of the trial.

**Findings:** There was significant increase in apoprotein A-I ( $P < 0.0001$ ) and a significant decrease in apoprotein B ( $P < 0.0001$ ) and apoprotein B/apoprotein A-I ratio ( $P < 0.0001$ ) at the end of the study compared with baseline values in the VAZ group but apoprotein A-I had a significant increase ( $P < 0.0001$ ) and the apoprotein B/apoprotein A-I ratio had a significant decrease ( $P = 0.02$ ) at the end of study in the VAZ group compared with the control group.

**Conclusion:** It seems that combined zinc and vitamin A supplementation can improve serum apoprotein A-I, apoprotein B and the apoprotein B/apoprotein A-I ratio in patients with DMTI.

**Keywords:** vitamin A, zinc, apoprotein, fasting blood sugar, insulin, diabetes mellitus type I

### Epidemiologic evaluation of infants with congenital hypothyroidism in Hamedan; a west province of Iran

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**Background:** Congenital hypothyroidism (CH) is the result of inadequate thyroid hormone production in newborn infants. Congenital hypothyroidism occurs in approximately 1 in 4000 live births but according to

published studies the incidence of CH is high among Iranian population. No data on the epidemiology of infants' congenital hypothyroidism is available from our region. We planned this study to identify the epidemiologic pattern of patients with congenital hypothyroidism being followed up in our pediatric endocrinology clinic.

**Methods:** All infants with biochemically confirmed CH (low T4, and TSH > 10 mIU/mL in venous blood) were enrolled in this study. A detailed record of the required information was made. The data was manually extracted and displayed in a descriptive manner.

**Findings:** Overall 160 infants with primary CH were detected among 105320 infants screened from May 2006 to May 2010 in our region. This gave an incidence rate of 1 in 658 live births for CH. The study population consisted of 150 infant with CH, 72 female (47.7%) and 78 male (52.3%). 28% of neonates with congenital hypothyroidism had relative parents and in other 72%, parents were not relative. 74.2% of patients diagnosed with screening and 25.8% diagnosed without screening. The mean age was  $47 \pm 61$  days (range: 6 days -120 days). The mean mother's age at delivery was  $25 \pm 5.3$  years (range: 17-40). The Mean screening TSH and venous TSH values were  $52.09 \pm 73.4$  mIU/ml (range: 5-333 mIU/ml) and  $43.46 \pm 30.4$  mIU/ml (range: 10-160 mIU/mL) respectively. The most common sign of congenital hypothyroidism was prolonged icterus.

**Conclusion:** The prevalence of CH in our region is higher than other countries. The difference in sex ratio was not significant. The result of this study suggests infants of consanguineous parents are at greater risk for congenital hypothyroidism than the rest of population. The most common sign of congenital hypothyroidism was prolonged icterus.

**Keywords:** epidemiologic, congenital hypothyroidism

### Pharmacological treatment of obesity in children and adolescents

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**Background:** The prevalence of overweight and obesity is increasing in children and adolescents raising the question on the approach to this condition because of the potential morbidity and mortality. The successful management of obesity is theoretically possible through lifestyle changes, but Dietetic and behavioral treatments have only limited success. In this paper, we summarize the currently approved pharmacological treatment for children and adolescents.

**Methods:** A recent guideline suggests considering pharmacotherapy in: (1) obese children only after failure of a formal program of intensive lifestyle modification; (2) overweight children only if severe co morbidities persist despite intensive lifestyle modification, particularly in children with a strong family history for type 2 diabetes or premature cardiovascular disease.

**Findings:** Up to now, only three drugs have been reported to reduce weight and/or body mass index (BMI) in adolescents: sibutramine, a neurotransmitter reuptake

inhibitor which enhances satiety by inhibiting the reuptake of serotonin, norepinephrine, and dopamine. Sibutramine is approved for children < 16 years for age. Dosage is 5-15 mg po qd. • orlistat, is a pancreatic lipase inhibitor which reduces fat absorption. FDA in December 2003 approved orlistat use in adolescents aged 12 to 18 years old with a BMI (kg/m<sup>2</sup>) > 2 units above the reference value at the 95th percentile for age and gender. The dosage is 120 mg po tid. • metformin, is an antihyperglycemic and insulin-sensitizing agent. The potential clinical application of metformin in the pediatric population was first described in the 1970s in a small published study demonstrating the beneficial effect on weight and insulin concentrations in 8–14-year-old obese children. Subsequent pediatric randomized, controlled trial studies have shown improvement in BMI, fasting serum glucose, insulin, and lipid profile in patients on metformin therapy for exogenous obesity associated with insulin resistance. Not FDA approved for treatment of obesity. Approved for ten years of age for type 2 diabetes mellitus. Dosage is 250-1000 mg po bid.

**Conclusion:** In summary, there is insufficient evidence to conclude that any one-treatment approach is superior in the management of adolescent obesity. At this time, the benefits of obesity pharmacotherapy must outweigh the risks and costs.

**Keywords:** obesity, treatment, children, adolescent

### **Bilateral pheochromocytoma in a child with atypical primary presentation; a very rare case**

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**Background:** Pheochromocytoma is a rare catecholamine-producing tumor arises from chromaffin cells of the adrenal medulla or extra-adrenal paraganglionic tissues and has different and variant presentations. Only 10% of pheochromocytomas occur in children with an incidence of approximately 1 case per 100,000 patient-years. It may be completely asymptomatic, or present with symptoms and signs such as headache, dizziness, palpitation, diaphoresis or hyperhidrosis, and hypertension. Bilateral pheochromocytoma, especially in children, is very rare and almost familial, but it has few sporadic cases. The diagnosis of isolated bilateral pheochromocytoma depends on ruling out congenital etiologies such as type 2 Multiple Endocrine Neoplasia (MENII), Von Hippel Lindau disease (VHL), type 1 Neurofibromatosis (NF I), Tuberous Sclerosis (TS), and Sturge Weber.

**Case Report:** The patient was a 12 year old boy who had referred with unusual suspicious symptoms of pheochromocytoma (weakness, dizziness, and hyperhidrosis) since the last year. During the disease, he had episodic headaches without hypertension. He had not any problem or disease until one year before. Hematologic exam revealed an elevated Erythrocyte Sedimentation Rate. In renal sonography and scan, we had hydronephrosis and pyelocaliceal dilatation. 24hour urine had an elevation in catecholamine metabolites. Abdominal CT showed solid enhanced tumors in both adrenals which was with MIBG

scan. The patient was treated with bilateral adrenalectomy and diagnosis was confirmed by pathology and IHC staining.

**Conclusion:** Although almost pheochromocytomas have typical presentations, they may present with unusual symptoms and signs like our case. So we should consider pheochromocytoma in patients with familial history of the disease, patients with typical symptoms or hypertension, and also patients with unusual presentations.

**Keywords:** pheochromocytoma, bilateral, child, weakness, hyperhidrosis

### **An insulin resistance girl with abnormal facial appearance and dentition**

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**Background:** Insulin resistance syndromes are associated with excess insulin level in relation to blood glucose level. Their causes are insulin receptor abnormalities, stimulatory or inhibitory insulin receptor antibodies, decrease insulin receptor numbers on cell surface or diminished insulin binding affinity to insulin receptor. Leprechaunism and Robson Mendenhall syndromes are extreme inherited insulin resistance syndromes that later are accompanied with facial and dental abnormalities, genital enlargement, pineal hyperplasia, paradoxical fasting hypoglycemia and postprandial hyperglycemia, protracted course and eventual diabetic ketoacidosis. Our patient is a ten year old girl with abnormal face and dentition. Diabetes mellitus manifested from six years of age. Hyperglycemia did not respond to age appropriate insulin dosage, and then insulin dosage was increased by her physician without appropriate glycemic control. She is growth retarded. We analyzed 22 exons of insulin receptor gene on short arm of chromosome 19, but we didn't find any identifiable disease causing mutation. Thus it is possibly a rare mutation within the intronic or promoter region.

**Keywords:** insulin resistance, leprechaunism, Robson Mendenhall syndromes, Insulin receptor

### **Cognitive impairments as consequences of cortisol rhythm disturbance in diabetic children**

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**Background:** Onset of cognitive dysfunction has been found to occur early in children with diabetes. Both hyperglycemia and hypoglycemia are known to cause cognitive impairment such as memory, learning and complex psychomotor performance problems. Presumably, variation of cortisol level directly and indirectly (by increasing insulin resistant) play an important role in cognitive deficit.

**Methods:** Salivary cortisol level was collected from 53 children who were presented the three hospitals in Tehran with type I and type II diabetes Mellitus from ages of 7 to

15 years. Participants also conducted several cognitive tests include: psychomotor functions, visual and auditory memory and verbal learning.

**Findings:** Findings revealed that 60.38% of participants were girls and 39.62% were boys. Mean age of patients was 11.68±3.87 years. Duration of disease was 6.02±3.8 and 58.3% of children suffered from type I diabetics. Several patients (18.2%) had eye involvement. Nonlinear regression was conducted for analysis of data. According to findings, disruptive cortisol level (low and high) showed the highest correlation to verbal learning problems (R<sup>2</sup>=.83; F=123.84; P=.001) and then visual memory deficits (R<sup>2</sup>=.80; F=102.84; P=.001). However, all of cognitive variables statistically demonstrated a significant relation to level of cortisol.

**Conclusion:** Cortisol demonstrated a nonlinear pattern relation to all of variables. Increasing and decreasing cortisol were related to more cognitive manifestations. Variations of Cortisol essentially associates with negative emotions like anxiety and depression. Emotion regulation would be the result of controlling cortisol disruptions and in the result, diabetic children experience less cognitive symptoms.

**Keywords:** children, diabetes Mellitus Type I and II, cortisol, cognitive manifestations

### Pubertal onset in girls of Qazvin province, Iran

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**Background:** Puberty is a critical time between childhood and adulthood. Puberty onset is determined by the appearance of breast buds in girls. Menarche usually occurs in middle or late puberty. Many studies have been reported that the mean age of breast development is decreasing.

**Methods:** This cross sectional study was conducted in 6 to 16 years old school girls during 2008 to 2010 in Qazvin. 2240 Healthy girls among a total of 12226 girls from all geographical regions with every socioeconomic status were selected by a stratified multistage cluster design to obtain representative sample of population. A questionnaire including demographic data, anthropometric measurements, secondary sexual characteristics, menarche status and its onset was filled out for every participant. Height and weight was measured and BMI was calculated. Secondary sexual characteristics including Breast development (B1–5) and pubic hair (PH 1–5) were evaluated according to marshal and tanner recommendation.

**Findings:** The mean ± SD of height, weight, and BMI of participants was 139.7±14.5, 36.1±12.9 and 17.9±3.7 respectively. In comparison with NCHS, the prevalence of underweight, normal weight, overweight and obese was 35%, 70.55%, 12.7% and 7.4% respectively. The mean age (10th – 90th percentile) of B2 and PH2 were 9.71(7.67 – 11.4) and 9.82 years (7.84 – 11.42) respectively. Mean age of menstruation was 12.52 years. The mean BMI was significantly higher in pubertal females comparing to prepubertal girls (p <0.001). Average duration of puberty (the time from initiation of puberty to menarche) was 2.81.

**Conclusion:** The mean age of pubertal onset in girls living in Qazvin is 9.71 years. Menarche occurs at mean age of 12.52 and onset of puberty earlier than 6.24 years will be precocious. An advance in the timing of onset of puberty

could be result of urban changes in lifestyle and nutrition. We found that girls in Qazvin had a slightly earlier age of initiation of puberty and of menarche in comparison with other studies in Iran. A longitudinal study of a similar population is needed to confirm the results. **Keywords:** puberty onset, breast development, pubic hair, menstruation, girls

### Prevalence of congenital hypothyroidism and related factors in south Khorasan province, 2006-2010

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**Background:** Congenital hypothyroidism (CH) is the most common endocrine disorder in children and a preventable cause of mental retardation. This study was performed to determine the prevalence and related risk factors of hypothyroidism in neonate in south khorasan.

**Methods:** This cross-sectional study was conducted based on data collected through the Neonatal CH Screening Project in South Khorasan Province during four years between March 2006 and March 2010. The neonates whose TSH of their heels blood was ≥5 were recalled and if the TSH was ≥10 they were treated. We got these data from their document and designed a questionnaire that could evaluate the prevalence of CH and predisposing factors. We used SPSS software to analyze the data.

**Findings:** From 38987 neonates, 1248 of them were recalled and TSH in 71 neonates was ≥10 which were treated as hypothyroid patients. The incidence of disease was 1 in 549 live births. The percent of non-consanguineous marriage was more than consanguineous. CH in boys was 6% more than girls. 50.7% of them lived in cities. The average weight of patients was 3100 gr and the average age of their mothers was 30.2 years. The TSH of the heels blood was 5-9.9, 10-19.9 and ≥20 in 45, 20 and 35 percent of neonates, respectively.

**Conclusion:** Incidence of neonatal hypothyroidism is high. It's necessary to inform parents for increasing to do screening program and also plan other studies for determining of the etiology of neonatal hypothyroidism is recommended.

**Keywords:** congenital hypothyroidism, neonate, recalled neonates

### Clinical aspect & evaluation of hypocalcaemia

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Hypocalcaemia results from an imbalance of calcium absorption, excretion and/or distribution. Hypocalcaemia defined as a total serum level of less than 7mg/dl in preterm infants, less than 8 mg/dl in newborns, and less than 8.8 mg/dl in children. Mild hypocalcaemia may be asymptomatic. However, clinically significant hypocalcaemia manifestations are paresthesia, tetany,

positive Chvostek and Trousseau sign, prolongation of the QT interval, QRS Complex and ST-segment changes, and in particularly acute circumstances, grand mal seizures and ventricular arrhythmias. The important message in all this is that causes of hypocalcaemia are both myriad and potentially devastating and etiological diagnosis always must be sought. Hypocalcaemia may be due to decreased intake or absorption or excessive loss of calcium, restricted exposure to sunlight or reduced intake, absorption, metabolism, or activity of vitamin D (different types of rickets) decreased production of bioactive PTH due to congenital abnormalities of PTH development or PTH synthesis (hypoparathyroidism) or impaired cellular responsiveness to PTH (pseudohypoparathyroidism), or hypomagnesemia. Review of the past medical history may reveal illness associated with hypocalcaemia. Physical examination will disclose AHO phenotype (in pseudohypoparathyroidism), cardiac murmur (in DGS),

chronic mucocutaneous candidiasis (in Polyendocrinopathy) and rachitic deformities (in rickets). Most commonly, however, the physical examination reveals no striking abnormality, other than those of increased neuromuscular irritability. First-time investigation should include measurement of total (and if available, ionized) calcium, phosphate, albumin, magnesium, alkaline phosphatase, creatinine, 25(OH)D, 1,25(OH)2D3 in blood. Urine should be taken for measurement of calcium, phosphate and creatinine. X-rays may reveal the presence of rickets, metacarpal shortening (in pseudohypoparathyroidism), hyperparathyroid bone disease or soft tissue calcification. In this article we review the evaluation of hypocalcaemia and its differential diagnosis including different types of rickets, hypoparathyroidism, pseudohypoparathyroidism, hypomagnesia, renal failure and hypophosphatemia.

**Keywords:** hypoparathyroidism, Rickets, pseudohypoparathyroidism, hypomagnesia

## Gastroenterology & Nutrition

### Allergic colitis in school age children (case series)

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**Background:** Allergic colitis is a disorder characterized by colonic inflammation and bloody stool in infancy. The most common type is Cow milk allergy which predominantly involves infants. However there are a small number of reports of allergic colitis in school age children. In addition, presentation of bloody stool in school age children always referred to inflammatory bowel disease (IBD) after infectious causes exclusion.

**Methods:** In this study, we present 5 cases of allergic colitis in school age children who respond to diet elimination and antihistamine drugs.

**Findings:** Five patients diagnosed with or strongly suspected to have IBD in our clinic from 2010 to 2011 were reviewed. Excluding infectious and chronic inflammatory causes, allergic colitis was suspected for 4 of them since they have no significant criteria for ulcerative colitis, indeterminate colitis, or crohns disease. Colonoscopy examination and biopsy were performed in all of them. All 4 patients received cow milk product free diet and antihistamine drug. No 5-aminosalicylates (5-ASA) or corticosteroid administered to them. 4 patients with allergic colitis (1 suspected and 3 biopsy-proven), responded to treatment with no recurrent episode during 6-8 months' follow up.

**Conclusion:** The causes and clinical findings of patients with colonic inflammation are varying. In addition it seems that, deliberate examination and observation before diagnosis of IBD are important for patients despite of their age. We recommend consider allergic colitis in top of differential diagnosis list of colitis in children and try to treatment with elimination cow milk product at the beginning step of treatment. Further studies are needed to investigate the incidence and different features of allergic colitis in school age children.

**Keywords:** allergic colitis, IBD, colitis, cow milk allergy

### Role of fecal calprotectin in differentiating between Hirschsprung's disease and functional constipation

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**Background:** Calprotectin is a 36.5 kD calcium and zinc binding protein in the S100 protein family. Fecal calprotectin levels are elevated in patients with inflammatory bowel disease (IBD) and some other gastrointestinal disorders such as colorectal carcinoma. We decided to evaluate fecal calprotectin level in distinguishing between functional and organic causes of constipation.

**Methods:** Seventy six children aged 1 to 120 months were recruited that all underwent deep rectal mucosal biopsies in our center. Nineteen cases were diagnosed as Hirschsprung's disease and 57 of patients had nerve ganglion cells in their biopsies. Calprotectin concentration was analyzed by ELISA method.

**Findings:** Although there was significant difference between median fecal calprotectin level of two groups (p: 0.036), however, median was not above predetermined cutoff value of 50 µg/g.

**Conclusion:** We propose that fecal calprotectin has limited value in differentiating functional from organic causes of constipation with the above cutoff.

**Keywords:** functional and organic constipation, fecal calprotectin, pediatric age group.

### The prevalence of Helicobacter pylori in children with recurrent abdominal pain

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**Background:** Helicobacter pylori are known as one of the most common causes of infection in human beings. It is estimated that about 80% of developing countries population are infected by this organism. H.pylori infection can lead to a wide range of diseases from dyspepsia to increased risk of gastric adenocarcinoma and lymphoma. The aim of the study is detection of the prevalence of H.pylori in children with recurrent abdominal pain (RAP).

**Methods:** In a cross-sectional study, 44 Children with RAP based on Apley criteria were entered. The study was done in 12 months from 2009 to 2010. The age of cases was between 5 to 15 years. The inclusion criteria was normal screening tests including blood cell count, sedimentation rate, stool exam especially for parasite, urine analysis & culture and abdominal ultrasonography. Fecal Antigen test for H.Pylori infection with ELISA method was done for all cases. Data analysis was done by SPSS software using Chi square test, student T test & regression analysis and P value less than 0.05 was considered significant.

**Findings:** Fecal Antigen test for H.Pylori infection was positive in 23 patients (%52/3) and were negative in 21(%47/7) cases. The prevalence of this infection in children of 5-7 years (32%) is more than cases of 13-15 years (%7). Sixteen patients of urban area (%45/7) and 7 Patients of rural area (%77/8) were infected by H.pylori (P value: 0.137). The prevalence of the infection was 66.7% (10) in girls and 44.8% (13) in boys which was not significantly different (P value: 0.169). The prevalence of H.pylori increased significantly in larger families especially in those with more than 5 members (P value: 0.003); this factor was also the only significant variable in regression analysis (P value: 0.047).

**Conclusion:** H.pylori was detected in more than half of our cases which might be higher using more specific tests; The prevalence was found to be higher among the younger age group; so it is suggested to look for it in RAP of preschool ages children especially in large families.

**Keywords:** children, fecal antigen test, Helicobacter pylori, recurrent abdominal pain

## Fatty liver in children

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Nonalcoholic fatty liver disease (NAFLD) is a clinicopathological condition that affects millions of people in developed countries and ranges from fat accumulation in hepatocytes without any evidence of inflammation or fibrosis (simple fatty liver) to hepatic steatosis with necroinflammatory changes with or without fibrosis. The latter condition is called nonalcoholic steatohepatitis (NASH) and may progress to cirrhosis and liver failure. Its prevalence ranges from 2.5% to 10% and increases with age and the number of risk factors. Obesity is probably the most important factor in the development of steatohepatitis, but science's understanding of the chain of events is still insufficient. NASH occurs in about 15% of obese children. With increased prevalence of childhood obesity, NAFLD is commonly seen in children. The most widely accepted pathogenic mechanism is insulin resistance; however not all patients with NASH exhibit insulin resistance. Other factors may contribute to the development of NASH:

- Oxidative stress (excess of oxidative radicals, antioxidant deficiencies, hepatic iron storage, leptin, and intestinal microflora)
- Production of toxic cytokines by the hepatocytes and other organs.
- Uncontrolled apoptosis in hepatocytes.

Potential pathophysiological mechanisms result in decreased mitochondrial fatty acid beta-oxidation, increased endogenous fatty acid synthesis or enhanced delivery of fatty acids to the liver, and deficient export of triglycerides. Resistance to the action of insulin results in important changes in lipid metabolism. These include enhanced peripheral lipolysis and increased hepatic uptake of free fatty acids. These mechanisms may contribute to the accumulation of hepatocellular triglyceride.

The genetic basis for insulin resistance associated with NASH remains unclear. An association with certain polymorphisms in the gene encoding for apolipoprotein C3 (APOC3) is implicated as a genetic basis for NAFLD.

**Diagnosis:** The disease is usually revealed incidentally during a routine checkup. Serum aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are elevated in most patients. The AST/ALT ratio is usually less than 1; this is in contrast to the ratio in alcoholic hepatitis which is usually more than 2.5. Some experts recommend that every obese child should have liver enzymes checked. In a small number of patients, NAFLD may be seen with a normal level of transaminases. Biliary system enzymes may be increased to a lesser degree. The patient is usually symptom free; however, there may be some degrees of abdominal pain or discomfort, hepatomegaly, weakness and fatigue. The patient rarely presents with signs of chronic liver disease: palmar erythema, muscular wasting and jaundice. The diagnosis of NAFLD is confirmed by imaging studies. Ultrasonographic study may be normal or show a mildly enlarged liver with echogenic texture. Fat accumulation in the liver can also be caused by excess alcohol intake, certain medications, viral hepatitis, autoimmune liver disease, and metabolic or inherited liver disease. Diseases such as mitochondrialopathies, tyrosinemia, cystic fibrosis, malnutrition, celiac disease and some forms of inborn

errors of carbohydrate metabolism are associated with steatosis. Prolonged parenteral nutrition is commonly associated with fatty liver disease. The pathophysiological process responsible for the steatosis in this condition is not completely understood, but possible pathogenic mechanisms include an increased calorie-to-nitrogen ratio, excessive glucose infusion rate, and carnitine deficiency. These distinct disorders need to be excluded as causes of fatty liver disease in order to confirm the diagnosis of NAFLD. Currently, the only reliable diagnostic measure is liver biopsy. However performing a liver biopsy as an invasive diagnostic option is of limited utility regarding the benign entity of the disease and its slow progression to cirrhosis. Histologic findings include macrovesicular steatosis, necroinflammatory changes and occasional fibrosis. When fatty liver is a consequence of drug toxicity, pathologic findings include microvesicular steatosis.

**Management:** Lifestyle modification and weight reduction are the only established treatment. Gradual weight loss usually causes liver function tests to return to baseline level. There is still no approved pharmacological intervention for NAFLD/NASH. Pharmacologic approaches under trial include the use of metformin, vitamin E, combination of vitamin E and C, and thiazolidinediones. Ursodeoxycholic acid (UDCA) may act as a hepatoprotective and antioxidant agent. It is demonstrated in a trial to be able to reduce ALT levels and improve liver histology in combination with vitamin E.

## Skin manifestations of autoimmune hepatitis(AIH) and case presentation of AIH with erythema nodosum

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**Background:** Autoimmune hepatitis (AIH) is a chronic hepatitis with ambiguous reason characterized by immunologic and autoimmunologic manifestations. AIH occurs in adults and children of all ages, mainly affecting females and occasionally have a fluctuating course, with periods of increased or diminished activity. Extrahepatic manifestations are common in both type 1 and type 2 AIH. One of the organs involved in AIH is skin. Pruritis, urticaria pigmentosa, vitiligo, erythema annular centrifugum, and cutaneous polyarteritis nodosa are some of the skin manifestations of AIH. Erythema nodosum (EN) is a skin lesion which is related to some of autoimmune diseases such as inflammatory bowel syndrome, Behçet syndrome, and non-autoimmune disorders such as tuberculosis, bacterial or deep fungal infection, sarcoidosis, or cancer. EN seems to happen in children more infrequently than in adults. Although, AIH is an autoimmune disease and also EN isn't unusual in autoimmune disorders, nevertheless companionship of EN and AIH has not been reported. We introduce a patient with autoimmune hepatitis who presented with erythema nodosum as the first presentation.

**Case presentation:** An eight-year old girl with persistent several dermatologic lesions was referred to our hospital since several months ago. The skin had nodular painful and dry erythematous nodular lesions predominantly on extensor areas of both legs and some erythematous patches on her face. Patient had received skin topical treatment for her lesions but with no response. The patient was referred to our pediatric ward because of intermittent nausea, vomiting and mild abdominal pain. On her physical exam, she had hepatosplenomegaly plus mentioned skin lesions. Skin biopsy was consistent with erythema nodosum.

**Findings:** Liver enzymes had been increased. Viral markers of hepatitis were all negative. Ultrasonographic imaging of liver also showed increased size and echogenicity. Liver biopsy was done for the patient and evidences suggested autoimmune hepatitis with interface hepatitis. The only positive autoimmune marker was anti smooth muscle antibodies. Other causes of chronic nodular dermatitis were overruled. The only obvious cause of skin lesions was the chronic inflammation due to autoimmune process. Patient was treated for her AIH and her skin lesions along with other symptoms and signs were resolved.

**Conclusion:** The AIH can present with many deceptive clinical shapes, raising the risk of postponed diagnosis. This case showed that it may be onerous to diagnose AIH if the patient has obscure symptoms. Thus dermatologic manifestations including EN could be a presentation of serious disease and further investigation might be required and AIH must be kept in mind as a possible diagnosis.

**Keywords:** autoimmune hepatitis, erythema nodosum, extrahepatic, skin

### Probiotics: effective health benefits on GI tract?

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**Background:** Probiotic microorganisms, typically members of the genera *Lactobacillus*, *Bifidobacterium*, and *Streptococcus* are fermentive, obligatory, or facultative anaerobic organisms. Reviews on the clinical applications of probiotics reveal the clinical effectiveness as below. To date, these products seem to be safe for healthy infants and children. Human milk, a natural probiotic, is preferred for infants through 6 months of age. Breastfed infants typically have a preponderance of naturally occurring probiotic bacteria in their digestive systems.

**Clinical applications:** Prevention and Treatment of Acute Infectious Diarrhea: Use of probiotics early in the course of diarrhea from acute viral gastroenteritis reduces its duration. However, routine use is not recommended for prevention.

Prevention of community-acquired diarrhea. **Prevention and Treatment of Antibiotic-Associated Diarrhea:** There is some evidence to support the use of probiotics to prevent antibiotic associated diarrhea but no evidence for treatment. **Prevention and Treatment of Atopic Disease:** Although some studies support the prophylactic use of probiotics during pregnancy and lactation and during the first 6 months of life in infants who are at risk of atopic disorders, further confirmatory evidence is necessary for routine use. **Prevention of Necrotizing Enterocolitis in LBW (1000 gr or more),** Prevention and Treatment of Colic, Extraintestinal Infections, Cancer, Allergy and enterocolitis in short bowel syndrome. **Treatment of IBS,** constipation, childhood *H.pylori* gastritis, acne, irritability in infants and severe gingivitis.

**Safety considerations:** There are few reports of significant complications or adverse effects from the use of probiotics. Mild abdominal discomfort and flatulence are the only adverse effects reported in most of the trials. There are rare case reports of bacteremia. Patients at risk would be those who are immunocompromised, including ill preterm neonates, and/or children who have intravenous catheters or other indwelling medical

devices. In most cases, the offending organism seems to have stemmed from individual's own endogenous flora. Addition of probiotics to powdered infant formulas has not been demonstrated to be harmful to healthy term infants.

**Keywords:** probiotic, GI tract,

### Perception of physicians about implementation of the early initiation of breast feeding and skin to skin contact within one hour of birth: a qualitative research

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**Background:** Breastfeeding in the first hour after birth has an important impact on decreasing the infant morbidity and mortality rate. This study was carried out to explore the views and perception of physicians about implementation of the early initiation breast feeding and skin to skin contact within one hour of birth in four baby friendly hospitals in Tehran in 2010.

**Methods:** In this qualitative research 18 in-dept interviews with physicians (Pediatricians, Gynecologists, Obstetrics) in four baby friendly hospitals were arranged in Tehran. These hospitals named: Mahdiah, Resalat, Sevomeh e Shaban and Hedayat. Each session continued for one hour. Data were recorded, transcribed and analyzed using content analysis.

**Findings:** Four themes were identified: 1) the early initiation of breastfeeding and skin to skin contact between mother and her newborn after cesarean might be limited due to some practical and medical safety reasons; 2) routine procedures of mother baby separation in the first hour for examination, cleaning of baby and observations have priority over breastfeeding in the first hour of life; 3) The number of the pediatric nursing staffs and midwives aren't enough for a successful early breastfeeding initiation and maternal baby contact; 4) Midwives have the main role in breastfeeding initiation and promotion.

**Conclusion:** The implementation of early initiation of breastfeeding and skin to skin contact within one hour of birth, especially in cesarean section, was not suitable. Educational programs for hospital staff such as pediatric nursing staff, midwifery and nursing unit managers are necessary to assure the early initiation of skin to skin contact and breastfeeding.

**Keywords:** Qualitative research, Breastfeeding, views, medical doctors

### Evaluation of some effective factors on the duration of breast feeding

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**Background:** Nutrition is crucial for health and physiological needs of the infant. Breastfeeding is the ideal method in this way. The purpose of this study was to assess the duration of breast feeding and also evaluate some factors on this period in infants of Zanjan city.

**Methods:** This cross-sectional study was carried out from May 2009 to May 2010. 400 mothers, whose babies were between 12-24 months of ages selected through cluster random sampling from health centers of Zanjan city. The tool of measurement was a questionnaire. The data were classified and analyzed by SPSS software.

**Findings:** The finding of the research showed that there was a meaningful correlation between variables of age, occupation of mothers and fathers, age at delivery, instruction advantages of breast feeding, times of breast feeding and the duration of sucking in one day, weight at birth, the time of first breast feeding after delivery, the time of starting formula and aid-feeding to the baby, the quality of baby's nutrition during hospitalization (P value <0.05) and the duration of breast feeding.

**Conclusion:** According to the finding of the research, many factors affect duration of breast feeding. The period of breast feeding could be increased by attention to these factors.

**Keywords:** breast feeding, duration of breast feeding, Infants

### **A prospective study of Bacillus Coagulans for pain related functional gastrointestinal disorders in children**

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**Background:** Chronic abdominal pain is one of the most common symptoms in childhood and adolescence. In the vast majority of these children the pain is functional.

**Methods:** In this study, 60 patients aged between 4-14 yrs who fulfilled the Rome III criteria for abdominal pain related functional gastrointestinal disorders (FGIDs) were prescribed Lactol tabs (Bacillus coagulans 150 mg and Fructooligosaccharides 100 mg ) for 3 months and followed every 1 mo for pain assessment up to 1 yr.

**Findings:** In 19 patients after 4 wks therapy, pain was stopped and after 3 mo therapy, 33 patients reported no pain. In other 27 patients the severity and frequency of pain were diminished but complaint of pain was remained. All of 33 respondent patients were symptom free for 1 yr follow up. No adverse reaction was seen.

**Conclusion:** Bacillus coagulans may be effective in pain related FGIDs.

**Keywords:** abdominal pain-functional, Bacillus coagulans

### **Evaluation of risk factor and etiologic factor of seizure in admitted diarrheic children**

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*Qom Azad University*

**Background:** Based on attention to the high prevalence of G/E in children and their complications like seizure, we must research about the reasons and predisposing factors of it to find out the main reasons of the complications. G/E and seizure are important etiologies of mortality and morbidity in children, especially in children under 6 years old. Our aim was to determine the predisposing factors of convulsion in children having diarrhea hospitalized in Qom Pediatric Hospitals through 2007-09.

**Methods:** In this (case – control) study, we compared 57 children with diarrhea and convulsion in Qom Pediatric Hospitals. Age range of children in two groups was 2 months – 12 years. Results of our study statistically analyzed with K- square test.

**Findings:** In this study from 57 patients with G/E and convulsion, 31 patients (%54/4) were males and 26 patients (%45/6) were females. In control group 31 patients were males and 26 patients were females that were under 3 years old. Especially between 2 months -2 years, the statistically difference of mean was not obvious. 94/6% of patients in this study were under 6 years old. 15/8% patients had positive familial history for convulsion. In this study, most common type of seizure was generalized. Mostly seizures had happened before the hospitalization. 98/2 % of seizures had duration of lower than 15 minutes. The mostly dehydration were medium and the most frequent clinical manifestation was fever in two groups. In this study 2 drugs had been used for treatment of convulsion.

**Conclusion:** This study detected predisposing factors for convulsion in G/E patients which were lower age, positive familial history for seizure and leukopenia.

**Keywords:** gastroenteritis, electrolyte disorders, convulsion, children, fever

### **Clinical manifestations and symptoms of vitamin D deficiency in children**

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**Background:** Vitamin D (VD) is of utmost importance for children health because of its role in immunomodulation and in use of calcium and phosphorus from the diet, so it is necessary for competent immune system, calcium metabolism and sufficient bone formation. In recent years, as well, an association between VD deficiency and complications of other diseases such as TB, cancers, multiple sclerosis, diabetes, etc, has been recognized. The goal of this study was to provide an overview on prevalence of clinical symptoms accompanied by VD deficiency.

**Methods:** A cross-sectional prospective study was conducted in general clinic at Ali-Asghar Children Hospital between 2008-2011 in patients, who were clinically suspected of VD deficiency by typical appearance, and some symptoms such as sweating, foot pain or fatigue. In these patients 25-OH VD was measured in all subjects and the data was presented in frequencies. The level of serum VD less than 30ng/ml was considered as deficiency.

**Findings:** As a whole, we detected 233 patients with VD level less than 30ng/ml with a mean value of 15.04ng/ml. 135 patients were males and 98 were females; and their ages were between 1 to 168 months with an average of 53 months. Appetites were normal in 218 of cases, but 15 patients were complaining about poor appetite. As a result, sweating, suspected appearance and an "early fatigue and foot pain" were detected in 130 (56%), 100 (43%), and 79 (34%) of patients with VD deficiency, respectively. It should be considered that 21, 25 and 24 patients out of 233 had been admitted to hospital due to pneumonia (9%), Idiopathic Thrombocytopenic Purpura (ITP) (10.73%), and Epstein Barr virus (EBV) (10.3%), respectively.

**Conclusion:** Evaluation of Vitamin D by its measurement and its management when below 30ng/ml is suggested in all patients especially in cases with nutritional, infectious, and auto-immune disorders and clinical symptoms such as poor weight or obesity, abnormal sweating, chronic cough, asthma, recurrent cold, and so on.

**Keywords:** vitamin D, deficiency, children, infection, autoimmune

### Prevalence of overweight and obesity among Iranian northern schoolchildren; economic status is a risk factor

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**Background:** Obesity is the most common health problem and the main aim of this study was to evaluate overweight and obesity and some related factors among Iranian northern primary school children in 2010.

**Methods:** This was a descriptive and cross-sectional study that performed on 7399 students (3934=male and 3465=female) from 112 schools in urban and rural area. The schools and students were chosen by cluster and stratify sampling. Data collected by questionnaire for all samples through interview. Spss, win16 software was used for analysis. Overweight and obesity were defined using age and sex specific body mass index (BMI) cut of point proposed by the Center of Disease Control and prevention (CDC).

**Findings:** Linear regression analysis revealed that weight, height and BMI increase 2.70 kg, 4.62 cm and 0.42 kgm-2 in boys (P=0.001) and 3.12 kg, 5.19 cm and 0.52 kgm-2 in girls (P=0.001) for one year increase in age, respectively. Wholly, the prevalence of overweight and obesity was 8.4% and 14.1%, respectively. Results of logistic regression analyses showed that the risk of overweight and obesity is 1.203[1.078-1.341, CI 95%] in male compare to female, 1.382[1.240-1.541, CI 95%] in urban compare to rural area and 2.297[1.911-2.761, CI 95] in good economic group compare to poor economic group.

**Conclusion:** These data show that obesity and overweight are prevalent among primary school children in the north of Iran and that social differences influence on it. Obesity was more common in boys than girls. The present findings highlight the important public health message of children especially in urban area and high income families in the north of Iran.

**Keywords:** obesity, schoolchildren, economic status, Iran

### Relation between milk consumption and ethnicity, economic status and parent's education level among primary school children in the north of Iran

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**Background:** Milk is the best source of essential nutrients and the main aim of this study was to evaluate the milk consumption status and interest in milk among Iranian northern primary school children in 2010.

**Methods:** This was a descriptive and cross-sectional study that performed on 7430 students (3935=males and 3495=females) from 112 schools in urban and rural areas. The schools and students were chosen by cluster and stratified sampling. Data collected by questionnaire for all samples through interview. Spss.win16 software was used for analysis.

**Findings:** Milk consumption was shown among 62.7% of students (females= 60.7% and males=64.5%) and in

Turkman ethnic groups (66.0%) was significantly more than other ethnic groups such as Fars-native (61.4%) and Sistanish ethnic group (58.2%) (P=0.001). Multiple logistic regressions was used to identify variables that contribute to consumption of milk at breakfast. The odds ratio estimate for milk consumption was 1.85 [95% CI: 1.59, 2.16] for good economic group compare to poor economic group; 1.17 [95% CI: 1.05-1.31] for 1-12 year schooling compare to illiterate mothers; 1.31 [95% CI: 1.09-1.08] for college educated compare to illiterate father. The odds ratio estimate for interest in milk was 0.84 [95% CI: 0.73, 0.99] for good economic group compare to poor economic group; 0.88 [95% CI:0.79-0.99] for 1-12 year schooling compare to illiterate mothers.

**Conclusion:** Interest in milk and consumption of it is low. Milk consumption rate in boys was more than girls, in urban area was more than rural area and in Turkman ethnic group was more than other ethnic groups. Low economic status and parent's illiteracy were the barriers for more milk consumption in the primary school children in the north of Iran.

**Keywords:** milk, school, children, race, Iran

### The investigation of the most common factors associated with failure to thrive in pediatric patients in Shohada Kargar hospital

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**Background:** Failure to Thrive (FTT) refers as inadequate physical growth or the inability to desired growth rate over time. Growth retardation as one of health problems is considered a multifaceted problem that multiple factors are involved in its occurrence. We decided to do a prevalence study to find factors related to growth failure in patients admitted to the pediatric shohada kargar hospital of Yazd.

**Methods:** This is a cross-sectional study, all children admitted to the pediatric shohada kargar hospital during the second six months of 2010-2011 have been studied and the required information includes: demographic characteristics, parent, child profile (gender, age, weight, History of jaundice and how labor) and the nutritional profile and serious cases of chronic disease and history of previous hospitalization. The tables were statistically described.

**Findings:** 18/8 percent of patients of the total had impaired growth. Of 18/8 percent of children with growth retardation, 17/5 percent of boys and 20/4 percent were female. Our study indicated that maternal education and had major operations associated with impaired children are grown. Also during the developmental indices of children, it became clear that violent movements and gestures and movements within and adaptation of personal and social development indicators significantly associated with growth retardation that are very useful for prevention. It also became clear that the laboratory review of blood hemoglobin and hematocrit levels in patients with impaired blood Ferritin growth have a significant relationship, and about half of patients with impaired growth of serum calcium and magnesium were lower than normal.

**Conclusion:** Considering that approximately 18/8% of hospitalized in pediatric disorders are growing, according to Commands in addition to nutritional diseases leading to hospitalization major importance is the path to growth and improve their chances of death.

**Keywords:** Failure to Thrive, children admitted

## Hematology & Oncology Abstracts

### Recommendation for prophylaxis in congenital Factor VII deficiency (a comparison between Factor VII deficiency and classic hemophilia)

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**Background:** Inherited Factor VII (FVII) deficiency is the most common among rare congenital bleeding disorders, accounting for one symptomatic individual per 500000 populations, and is characterized by autosomal recessive inheritance. Disorder is usually detected only in the homozygous state. Bleeding in patients affected by inherited factor VII deficiency is extremely heterogeneous concerning sites and severity. Hemorrhagic predisposition in affected patients correlates poorly with plasma factor VII activity levels. Individual with this deficiency may have spontaneous intracranial hemorrhage and frequent mucocutaneous bleeding. Other clinical manifestations are hemarthrosis and crippling arthropathy (comparable to patients with classic hemophilia), haematuria, and menorrhgia. Factor VII is vitamin K-dependent factor, but vitamin K administration has no therapeutic benefit in the treatment of hereditary deficiencies. The design protocol of on demand and prophylactic in these patients are very important.

**Methods:** There were 110 patients of hemophilia and rare bleeding disorder in our centre. 6 of them (2 alive, 4 death) have congenital factor VII deficiency and 67 of them have hemophilia A. We compared times of bleeding, severity of them and risks of bleeding in this two groups. Findings on Descriptive statistics (contain mean and sum and frequency) were analyzed.

**Findings:** The risk of bleeding specially brain hemorrhage in congenital factor VII deficiency is greater than classic hemophilia.

**Conclusion:** Although prophylactic management of congenital factor VII deficiency is not recommended in text books, considering the risks of disease this management with long acting de novo factor seven recommended.

### Efficacy and side effects of osveral (deferiasirox), an oral iron chelator in major Beta-thalassemic patients referred to 17th Shahrivar pediatric hospital, Rasht since Oct. 2007

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**Background:** Many major beta-thalassemic children have iron overload resulting from repeated blood transfusions, presenting with elevated serum ferritin. This may cause progressive side-effects including vital organ dysfunctions and early death. So far, deferoxamine (desferal) has been the main chelating drug

for iron overload treatment in these patients, leading to several adverse effects and patients low compliance. Deferiasirox or Osveralis known as a new once daily oral chelating drug with appropriate efficacy for major beta-thalassemic patients. The objective of this study was to study the efficacy and side effects of Osveral, an oral iron chelating drug in major beta-thalassemic children.

**Methods:** 46 patients with major beta-thalassemia, 22 girls (47.8%), 24 boys (52.2%), with mean age 12±3.8 undergoing regular blood transfusions, referred to 17 Shahrivar hospital, included in this study. Study period was from Oct.2007 till Oct 2010, and the patients were under treatment for at least 1 year with osveral. During the study physical examinations, serum ferritin level and periodic laboratory investigations (liver and renal function tests, blood and urine exams) were measured at the beginning of treatment, and in monthly regular referrals. Also audiometric, visual, and cardiac investigations were established at the beginning and then yearly, in order to diagnose and evaluate the probable side-effects of the drug. The relation between the variables and also between the variables and treatment success has been analyzed utilizing statistical tests (descriptive and inductive) by SPSS software ver.16. Significant relationship has been considered as P> 0.05.

**Findings:** From 46 patients participating in the study, 19 continued the treatment successfully and had significant reduction in serum ferritin level comparing to the base ferritin after at least 1 year treatment (Mean difference: 313.2±590.49 µg/l). 27 patients were excluded, comprised of 15 (51.48%), because of treatment failure and ferritin increase, 7 (25.9%) because of serious side-effects, and 5 (18.90%) because of parents' refusal. No significant statistical difference was seen between age, sex, side effects, base serum ferritin levels and treatment success.

**Conclusion:** These results show that osveral (Deferiasirox) an oral chelator drug has an appropriate efficacy in reducing the serum ferritin level in children suffering from major beta-thalassemia, and that its serious side effects are not significant, and all are reversible with discontinuing the treatment.

**Keywords:** major beta-thalassemia, osveral, ferritin

### Prevalence of iron deficiency anemia in breastfed infants aged 6 months

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**Background:** Iron deficiency anemia (IDA) is the most prevalent nutritional deficiency through out the world and its negative effects on the critical rapid growth and development period of infancy are well established. By 4 months of age, infantile iron stores are reduced by half and exogenous iron should be given to meet the needs of normal growth and development. Consequently, daily iron supplementation is recommended by both the AAP and WHO. Iron deficiency anemia is rarely seen in breastfed infants during the first six months of life. In Iran usually public day care centers start maintenance iron supplementation for breastfed infants at 6 months old. The aim of this study was to identify the

prevalence of Iron Deficiency anemia among breastfed infants aged 6-7 months.

**Methods:** A cross-sectional study was conducted with a sample of 176 infants aged 6 to 7 months attending two public day care centers for vaccination in city of Yazd, Iran. Anemia was defined as hemoglobin  $< \text{or} = 10.5$  g/dL. Anemic infants were further screened for iron deficiency. Infants with iron-deficiency anemia were identified by hemoglobin  $< \text{or} = 10.5$  g/dL, mean corpuscular volume (MCV)  $< \text{or} = 75$  fL, and serum ferritin  $< \text{or} = 12$  microg/L.

**Findings:** Of 186 infants enrolled, 76(37.4%) were anemic (Hb $<105$  g/L) and 85.5% presented iron deficiency confirmed by two positive indicators (MCV $< \text{or} = 75$  fL, and serum ferritin  $< \text{or} = 12$  microg/L).

**Conclusion:** This study indicates that prevalence of anemia is significant in infants of 6-7 months of age. Larger multicenter studies will be necessary to determine the prevalence of iron deficiency and iron deficiency anemia among these infants. This will definitely help us to reduce the prevalence of this treatable nutritional deficiency.

**Keywords:** anemia, iron-deficiency, infant, prevalence

### Cardiac involvement in young patients with thalassemia intermedia

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**Background:** Cardiovascular abnormalities are the main cause of morbidity in patients with thalassemia syndromes. This condition has not been yet fully characterized in young patients with Thalassemia intermedia (TI). The purpose of the present study was to determine the form and severity of cardiac abnormalities in young patients with TI.

**Methods:** Twenty eight asymptomatic patients (39% male), age  $13.6 \pm 5.7$  years and 35 age and sex matched healthy subjects were included in this study. Full resting echocardiography was done. The echo study addressed LV dimensions and mass, LV combined systolic - diastolic function and pulmonary pressure. Combined LV function was assessed by calculation of myocardial performance index (MPI), as a simple and reproducible index, in predicting early disturbances of LV function. Diastolic LV function was evaluated by Doppler parameters, including early (E) and late (A) diastolic peak flow velocities, E/A ratio, deceleration time of E wave (DT), and LV isovolumic relaxation time (IVRT).

**Findings:** LVH was found in 12 (46.4%) patients. The systolic volume index was significantly increased in patients ( $p < 0.03$ ). The mean value of PWD-MPI of the patients was significantly different from those of the control subjects ( $0.35 \pm 0.08$  vs.  $0.32 \pm 0.03$ ,  $p < 0.03$ ). MPI cutoff value of  $>0.35$  identified subclinical LV dysfunction with a sensitivity of 60% and specificity of 83%. Regarding the LV diastolic function indices, E and A were significantly higher in patients ( $P < 0.01$ ) and were compatible with high output state. No significant difference was also found between E-to-A ratio, DT, IVRT and peak systolic tricuspid pressure gradient for patients (uncontrolled and controlled) and control subjects. PAT and PAT/RVET were lower in patients

than in controls but the difference was not significant ( $105 \pm 22$  vs  $120 \pm 17$  msec,  $P < 0.01$ ).

**Conclusion:** Subtle abnormalities of LV function develop early in asymptomatic young patients with TI. MPI, measuring by PWD, is appropriate indicator of overall LV function. Further investigation is needed for the perfect assessment of multiple disrupting factors on cardiac function and for improving outcome in children with TI.

**Keywords:** thalassemia intermedia, cardiac disease, children

### Serum levels of mannose-binding lectin (MBL) and the risk of infection in pediatric oncology patients with chemotherapy

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**Background:** Morbidity and mortality due to infections remain serious problems in pediatric oncology patients receiving chemotherapy. Association of MBL levels with an increased risk for infection in previous studies was contradictory. The aim of this study was to determine whether MBL deficiency is associated with the risk of infections in pediatric oncology patients.

**Methods:** Prior to the start of chemotherapy a blood sample was taken from 75 patients with Acute Lymphoblastic Leukemia and MBL serum concentration was measured using a commercially ELISA kit.

**Findings:** Twenty patients had concentrations under  $1000 \mu\text{g/L}$ , defining MBL deficiency and the remaining 55 patients had concentrations  $>1000 \mu\text{g/L}$ . Ten patients suffered from more than one episode of severe infection. Sixty-five percent of patients with MBL below  $1000 \mu\text{g/L}$  suffered from 2 or more episodes of infections (3 of 16 individuals with one severe infection; 10 of 16 with 2 and 3 of 16 with 3), in contrast to only 29 of 55 (52%) patients with MBL above  $1,000 \mu\text{g/L}$  (19 of 27 individuals with one severe infection and 10 of 27 with 2). The difference between two groups was significant ( $P < 0.001$ ).

**Conclusion:** The results of this study indicate that low MBL serum levels ( $<1000 \mu\text{g/L}$ ) identify pediatric cancer patients at increased risk for infections.

**Keywords:** MBL levels, infection, acute lymphoblastic leukemia

### Transient leukemia in a neonate with trisomy 21 (Down syndrome), Two years follow up; A case report

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**Background:** Transient leukemia is a rare condition that seldom occurs in neonates with Down syndrome. This condition disappears without treatment in a few weeks or months and misdiagnosed with AML (leukemia) and maybe appears in childhood with acute leukemia.

Case presentation: A two- day - old girl was admitted to Madany hospital of Khorram Abad because of respiratory

distress and severe rash. She was first baby from related parents (first cousins) with no history of pregnancy problems. On physical examination, phenotype was Down syndrome. She had respiratory distress and respiratory stridor, grade 2/6 heart murmur, hepatosplenomegaly 5-6 cm lower than subcostal margin and severe generalized urticaria-form rash. Laboratory study revealed WBC: 99700 (Lymph 77%, Poly 23%), Hb=11.6, Plt =109000, Mcv =114, McH= 34.2, CRP = positive, ESR=1, Electrolytes were normal, and no growth blood culture. Myeloid leukemia suspected because 77% metamyelocytes were seen in peripheral blood smear. Echocardiography revealed ASD, PI, PH and chromosomal study showed 47xx+21. Then parents did not agree for bone marrow aspiration for definite diagnosis and neonate was discharged after 7 days. She followed out-patiently for signs & symptoms. After two months, WBC count was 6600 with normal differentiations, Hb=9.2, Plt =423000 and there was no hepatosplenomegaly in physical examination. She followed for two years; she was well with normal growth and development.

**Keywords:** khorram Abad, transient leukemia, trisomy 21, Down syndrome

### Principles of cancer therapy in children and adolescents

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**Background:** Malignancies are rare in the age group of 0-15 years. However, they rank as 2nd cause of death after accidents and poisoning. Their incidence is reciprocal to the socio-economic status of the population but an upward trend is reported. The annual cancer incidence in Iran is 17-18/100,000, meaning 3000-3500 new patients in a population of 75,000,000, 34% being 0-15 years old. High survival and cure is achieved in 70-80% of patients. Treatment of pediatric neoplasm is a dilemma in Iran. Biologic characteristic of childhood malignancies are rapid regional and distant spread, hence early commencement of multidisciplinary approach. Goals are reduction of tumor mass, rendering its operability and abolition of metastasis. This is achieved by poly-chemotherapy, surgery and radiotherapy, either as neo-adjuvant or adjuvant therapy.

**Methods:** Neo-adjuvant therapy comprises stepwise: diagnostic biopsy, preoperative chemotherapy and tumor extirpation. Kinetic response is assessed by tumor histology and malignant grading. Intra- or postoperative imaging procedures, including PET Ct-Scan help to localize tumor remnants and determine their metabolic activities. Based on these results chemo- / radiotherapy will be elaborated and enacted: postoperative adoptive chemo/radiotherapy. The modus being synchronic or sequential. Adjuvant therapy comprising chemo- /radiotherapy is applied in case of primary tumor resection. In Poly-chemotherapy targets proliferating and differentiating tumor cells (G0, G1, S, G2, M phase), implemented drugs act respectively as complementary. Maintenance chemotherapy aims to overcome drug resistance of remnant or metastatic tumor. Radio-sensitization is another treatment modality as indicated in CNS tumors or soft tissue sarcomas utilizing drugs like Bleomycin, cis-Platin or Doxorubicin.

**Conclusion:** According to the forgoing, pediatric neoplasm treatment is a matter to be achieved in specialized centers by medical experts. Due to long term survival of afflicted patients provision of following objectives must be ascertained: 1) follow-up for early toxicities, late effects and eventual relapse, 2) psychological care, also for the family members, 3) physical rehabilitation, 4) social reintegration and 5) detection of second malignancies.

**Keywords:** pediatric, cancer therapy, principles

### Evaluation of prevalence of leukocytosis in patients with G6PD deficiency admitted to Madani Hospital in Khorram Abad – 2010

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**Background:** Deficiency of glucose 6 phosphate dehydrogenase enzyme is one of the most acute hemolytic anemia that presented after contact to toxin in homozygote person and needs to give emergency blood transfusion for treated acute anemia and complications. Goals of this study were evaluation of prevalence of leukocytosis in patients with G6PD deficiency admitted to Madani Hospital and antibiotics administration them.

**Methods:** This is a retrospective study in 72 patients with G6PD deficiency referred to Madani Hospital with acute hemolytic anemia and tools of study were files. Data collected and statistical methods were performed.

**Findings:** In 72 patients with G6PD deficiency admitted for acute hemolytic anemia, 64% were boys, their age were between 14 months to 14 years, 72% were urban, 92% transfused red packed cells, 8% did not need to transfusion, 15% needed two or more times blood transfusions. 75% had leukocytosis more than 15000 per/ ml and resolved in 85% after packed cell transfused. CRP was negative in 62.5%. Antibiotics started in 43%, but 57% were not given antibiotics. In most patients, leukocytosis resolved after blood transfusion.

**Conclusion:** leukocytosis is common in acute phase of lysis in G6PD deficiency and did not need to start antibiotics.

**Keywords:** G6PD deficiency, leukocytosis, Khorram Abad

### Factor VII deficiency with massive GI bleeding in 4 hours newborn; A case report

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**Background:** Neonatal hemorrhagic disorders such as GI bleeding are conditions that occur in newborn with septicemia, respiratory distress syndrome, DIC and other poor conditions. Factor VII deficiency is a very rare coagulopathy presented with massive GI bleeding and intracranial hemorrhage that poorly responds to FFP because of low half life of this factor.

**Case presentation:** A 4 hour boy admitted to NICU in Madani hospital of khorram Abad because of massive GI bleeding. He was born from second uncomplicated pregnancy of related parents (first cousin). He had born via caesarian section because of repeated section. He started vomiting in second hour after birth followed by massive GI bleeding. He admitted to NICU and treatment started. He took serum and H2 blocker drug, antibiotics, FFP and vit K, but GI bleeding continued. He took repeated FFP more than two times in a

day, but didn't stop bleeding. Laboratory study revealed, WBC= 6500 with normal Diff, Hb= 14.2, Plt =22000, PTT was in normal range but PT was very longer than normal. Blood, CSF and urine culture were negative. Anti platelet antibody was negative and maternal platelet was normal. In the course of his admission, he had convulsion and treated for seizure. Brain CT scan reported intracranial hemorrhage. Finally Coagulation factors assays was done and revealed very low level of factor VII. Then factor VII was replaced and bleeding stopped.

**Findings:** Factor VII deficiency is very rare Coagulopathy disorder that only becomes symptomatic in homozygote patient and muco cutaneous and intracranial hemorrhage are seen in the patient and replacement of FFP couldn't stop bleeding because of low half life of factor VII.

**Key words:** Factor VII deficiency, GI bleeding, intracranial hemorrhage, khorram Abad

### Alteration of p53 in ALL

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**Background:** The TP53 gene, which encodes the p53 transcription factor, is itself altered in ALL; however, components of the p53 pathway are frequently mutated in ALL. As a tumor suppressor, p53 becomes activated in response to aberrant cellular proliferation, DNA damage, or hypoxia. The activated p53 triggers the arrest of the cell cycle or apoptosis, depending on the cellular context. The gene encoding p53, TP53, is mutated in approximately 50% of human cancers, making it one of the most frequently mutated genes. The purpose of this study was to determine the value of p53 in human ALL leukemia.

**Methods:** We examined 70 ALL patients diagnosed in two Children's Medical Centers and compared them to 100 control samples of healthy individuals. Genomic DNA was isolated from peripheral white blood cells by routine phenol-chloroform extraction. The exon of the gene was amplified by polymerase chain reaction using flanking intronic primers, then the PCR products were digested with restriction enzyme *pst*I and separated by 3% agarose gel electrophoresis. Positive and negative

controls were included in each assay, and in positive samples were confirmed by direct sequencing of PCR products using BigDye chemistry and an Avant 3100 Genetic Analyser (Applied Biosystems).

**Findings:** Our investigation showed that the frequency of p53 in ALL patients was 40% heterozygote and 8.7% homozygote and 45% was normal.

**Conclusion:** Alterations of p53 and its pathways collaborate in the pathogenesis of ALL. Alteration of p53 plays an important role in disease progression

**Keywords:** ALL, acute lymphocytic leukemia

### Comparison of the effect of Anti-D Ig and IVIG in the treatment of pediatric cases of acute ITP

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**Background:** ITP is the most common autoimmune disease affecting blood cells. Various treatments have been proposed for this condition including Anti-D Ig and IVIG which appear to be significantly different in terms of cost, complications and usability. However, comparative studies of their effects are few and this study was designed to compare their effect and complications in the treatment of acute ITP.

**Methods:** In this double-blinded clinical trial, 96 cases of ITP were enrolled and randomly allocated to the Anti-D Ig (75µg/kg) or IVIG (1gr/kg) treatment groups. Tests, including the platelet count and hemoglobin level, were done before and over weeks after treatment. Results were analyzed using the repeated measures ANOVA (for quantitative variables) and the chi-square (for qualitative variables).

**Findings:** According to the ANOVA, the increasing trend in the platelet count was statistically significant in both groups ( $p < 0.0001$ ) over the treatment period, but the inter-group difference was not ( $p = 0.417$ ). The drop in hemoglobin level was not significantly different between the two groups either ( $p = 0.413$ ). In different age groups, however, the hemoglobin drop was greater in under 3 month old patients receiving Anti-D Ig in comparison to the same age group in the IVIG group ( $p < 0.001$ ). In terms of time of effect, there was no inter-group difference in the platelet count during the first 24 hours, and the effect of treatment was seen after 24 hours in both groups.

**Conclusion:** In our series of patients, Anti-D Ig and IVIG appeared to have similar effects in the treatment of acute ITP. Since the amounts of hemoglobin drop (in the over 3 month old group) and the time of effect was not significantly different between the two groups, Anti-D Ig may be a suitable substitute for IVIG in light of its lower cost.

## ***Clinical Immunology, Allergy and Immunodeficiencies***

### **World-wide review of progress in gene therapy for primary immune deficiencies: current studies and future technologies**

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CGD results from mutations in superoxide-generating phagocyte NADPH oxidase subunits. Patients have recurrent pyogenic infections and granulomatous inflammation. Hematopoietic stem cell (HSC) transplant (HSCT) can cure CGD. However, 30% of CGD patients in need of transplant lack any suitable donor. We conducted a clinical trial of ex vivo autologous HSC gene transfer as salvage therapy for 3 X-CGD patients with incurable infection and lacking a suitable donor. Amphotropic MFGS-gp91phox retrovirus vector achieved 73%, 40% and 25% ex vivo transduction of patient autologous CD34<sup>+</sup> peripheral blood mobilized HSC. Following busulfan conditioning 10mg/kg patients received transduced autologous HSC resulting in early gene marking of 24%, 5% and 4% of circulating neutrophils are oxidase normal. Subjects #1 and #3 fully resolved infection present at the time of gene therapy and have maintained gene marking at 4 years of 1% and 0.03% oxidase normal neutrophils. Subject #2 lost gene marking by 4wks and 6mo later succumbed to his infection. The two surviving subjects have normal blood count and bone marrow exam, with no evidence for clonal dominance of vector inserts. We conclude that gene therapy salvage treatment for severe infection unresponsive to conventional therapy can provide life-saving clinical benefit to CGD patients lacking a suitable donor. For next generation gene therapy of X-CGD we have developed a candidate HIV lentivector with insulated self-inactivating design expressing gp91phox from an EF1a short promoter driven codon-optimized cDNA, that can achieve >60% ex vivo marking of X-CGD patient CD34<sup>+</sup> HSC and full oxidase function correction of >50% of the human neutrophils arising in vivo from transduced X-CGD patient CD34<sup>+</sup> HSC transplanted in NOD/SCID or NSG mice.

As an alternate approach to gene therapy, we developed induced pluripotent stem cells (iPSCs) from X-CGD patients. Mature neutrophils differentiated from X-CGD iPSCs lack oxidase activity. Zinc finger nuclease mediated gene targeting of a single copy gp91phox therapeutic minigene into one allele of the "safe harbor" AAVS1 locus in X-CGD iPSCs resulted in sustained expression of gp91phox and restored neutrophil oxidase activity. Precise gene targeting may

be applied to correction of X-CGD using zinc finger nuclease and patient iPSCs. As an early clinical application, we are developing the pre-clinical technology to use autologous oxidase-corrected neutrophils differentiated in vitro from patient derived gene iPSCs in the management of severe infection.

### **Transplantation for PID with a focus on CGD: who, when and how?**

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Allogeneic transplant can be curative for PID patients, but for certain diseases has been considered as more of a last resort. For example, although, we have shown that nonmyeloablative regimens can be used in infected CGD patients with matched sibling donors, many centres have shown reluctance to proceed with transplant for what is considered a non-fatal disorder. We will present CGD data discussing who should be considered a candidate for transplant as well as outcomes from different transplant regimens. Finally, in 2007, after establishing an agreement with the National Marrow Donor Program (NMDP), we initiated a protocol for these high risk patients with and without matched sibling donors and show that a tolerance-based regimen allows for engraftment with little to no infection progression or Graft versus host Disease (GVHD). Although the majority of the transplants to date have been done for patients with CGD, patients with other PIDs have been included with similarly encouraging results. The results from this more recent trial will also be discussed as well as rationale for tailoring regimens for specific disorders.

### **Advances in primary immune deficiency diseases**

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In the last 10 years, the approach to primary immune deficiency diseases (PID) has shifted from clinical description and conventional therapy to molecular based analysis, disease-specific hematopoietic stem cell transplantation (HSCT) protocols and gene therapy.

New single gene defects are reported every month and the total number of single gene defects causing PID

is now >170. We have realized that mutations in a single gene can lead to multiple clinical phenotypes as exemplified by patients with mutations in the Wiskott-Aldrich Syndrome (WAS) gene. On the other hand, defects in multiple genes can result in similar clinical phenotypes, as exemplified by the Hyper IgM syndromes that have been associated with more than half a dozen unrelated genes.

These disorders affect cognate immunity when interfering with VDJ rearrangement required for T and B cell receptor generation. More recently, defects in the innate immune system have been recognized involving neutrophils, monocytes and dendritic cells as well as lymphokine and complement components. Some single gene defects result in unique susceptibility to specific organisms, such as mutation in the interferon gamma /IL12 axis or in the Toll-like Receptor (TLR) signaling pathway. These defects can result in unusual susceptibility to bacteria (e.g. strep pneumoniae), fungi (Candida albicans) or viruses (Herpes simplex or EBV). An entirely new concept has been introduced by the observation that acquired somatic mutations of certain genes can cause phenotypic similar clinical syndromes than those caused by genomic mutations, an example being ALPS caused by mutations in FAS; or the discovery that the spontaneous appearance of antibody to lymphokines, e.g., anti-interferon  $\gamma$ , anti-IL6, and anti-IL17, resulting in susceptibility to specific pathogens, e.g., atypical mycobacteria or Candida. These new insights into the pathogenesis of PIDD provide unique diagnostic options, novel therapeutic opportunities and more evidence-based genetic counseling.

### **Autoimmunity in primary immunodeficiency disorders**

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Autoimmunity and primary immunodeficiency disorders (PID) have been considered two opposite extremes resulting from defects of the immune system. While autoimmune disorders are more complex multifactorial and polygenic, PID are monogenic disorders. Accordingly, the presence of autoimmunity in PID provides an important tool to study the importance of a single gene in tolerance. Data from different registries have shown that autoimmune manifestations are the 2nd most common manifestation in PID patients after infections. Autoimmunity in PID could result from failure of self-tolerance (central vs peripheral), homeostatic lymphoid proliferation or defects in innate immunity. Controlling autoimmune manifestations in PID patients may not be easy and may require aggressive immune suppression/ modulation that can complicate the underlying defect. PID should be suspected in patients with autoimmune manifestation specially if associated with infections, and if occurring in infancy.

### **Approach to the children with recurrent infections**

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Recurrent and chronic infections in children are common reasons for physicians' visits and present a diagnostic challenge to pediatricians. Different risk factors and underlying disorders result in this problem. The main causes of and chronic infections are atopic disorders, anatomical and functional defects, secondary immunodeficiency and primary immunodeficiency (PID) which need to be considered in evaluation of children with history of recurrent infections. Although PID disorders were originally felt to be rare, it has become clear that they are much more common than routinely appreciated and recurrent infection is the major manifestation of these hereditary disorders. Early diagnosis of immunodeficient children is essential to institute early lifesaving care and optimized treatments. Therefore in the approach to children with recurrent infections, careful medical history and physical examination with more attention warning PID signs and symptoms is essential to distinguish those children with underlying PID from those who are normal or having others underlying disorders. If indicated, appropriate laboratory studies including simple screening and advanced tests must be performed. This article provides guideline to describe approach to children with recurrent infections. Moreover, important warning signs and symptoms which suggest underlying PID and an appropriate laboratory studies are discussed.

### **Approach to a patient with congenital neutropenia**

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Primary immunodeficiency diseases (PIDs) are heterogeneous group of congenital disorders, characterized by different defects in the immune system which lead to recurrent infections, autoimmunity, malignancies, and hematological disorders. Although neutropenia could occur in most PIDs, as a result of either recurrent infection or autoimmunity, some may suffer the congenital form of this hematological abnormality. These disorders consist of several inborn diseases ranging from isolated form of neutropenia such as severe congenital neutropenia and cyclic neutropenia to complex

inherited disorders associating neutropenia. Chediak-Higashi syndrome, Griscelli syndrome type 2, Hermansky-Pudlak syndrome type 2, and p14 deficiency are a group of PIDs with neutropenia and oculocutaneous hypopigmentation, whereas exocrine pancreatic insufficiency in Shwachman-Diamond syndrome and warts in WHIM syndrome could be the prominent findings. CD40 ligand deficiency which is usually characterized by hypogammaglobulinemia and increased or normal IgM level could also present with neutropenia. Cartilage hair hypoplasia, glycogen storage disease Ib, Barth syndrome, dyskeratosis congenital, and Cohen syndrome are some other diseases which could be associated with neutropenia.

### Allergic Rhinitis

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Allergic rhinitis is a symptomatic disorder of the nose induced after allergen exposure by an IgE-mediated inflammation of the membranes lining the nose. It is a global health problem that causes major illness and disability worldwide. Over 600 million patients from all countries, all ethnic groups and all ages suffer from allergic rhinitis. It affects social life, sleep, school and work and its economic impact is substantial. Risk factors for allergic rhinitis are well identified. Indoor and outdoor allergens as well as occupational agents cause rhinitis and other allergic diseases. The role of indoor and outdoor pollution is probably very important, but has yet to be fully understood both for the occurrence of the disease and its manifestations. In 1999, during the allergic rhinitis and its impact on asthma (ARIA) WHO workshop, the expert panel proposed a new classification for allergic rhinitis which was subdivided into 'intermittent' or 'persistent' disease. This classification is now validated. The diagnosis of allergic rhinitis is often quite easy, but in some cases it may cause problems and many patients are still under-diagnosed, often because they do not perceive the symptoms of rhinitis as a disease impairing their social life, school and work. The management of allergic rhinitis is well established and the ARIA expert panel based its recommendations on evidence using an extensive review of the literature available up to December 1999. The statements of evidence for the development of these guidelines followed WHO rules and were based on those of Shekelle et al. A large number of papers have been published since 2000 and are extensively reviewed in the 2008 update using the same evidence-based system. Recommendations for the management of allergic rhinitis are similar in both the ARIA workshop report and the 2008 update. In the future, the GRADE approach will be used, but it is not yet available. Another important aspect of the ARIA guidelines was to consider co-morbidities. Both allergic rhinitis and asthma are systemic inflammatory conditions and often co-exist in the same patients. In the 2008 update, these links have been confirmed. The ARIA document is not intended to be a standard of care document for individual countries. It is provided as a basis for physicians, health care professionals and organizations involved in the treatment of allergic rhinitis and asthma in various countries to facilitate the development of relevant local standard-of-care documents for patients.

#### Allergic rhinitis recommendations:

1-Allergic rhinitis is a major chronic respiratory disease due to its prevalence, impact on quality-of-life, impact on work/school performance and productivity, economic burden links with asthma.

2-In addition allergic rhinitis is associated with co-morbidities such as conjunctivitis.

3-Allergic rhinitis should be considered as a risk factor for asthma along with other known risk factors.

4-a new subdivision of allergic rhinitis has been proposed: intermittent(IAR) and persistent( PER).

5-The severity of allergic rhinitis has been classified as ' mild' moderate/ severe' depending on the severity of symptoms and quality-of-life outcomes.

6-Depending on the subdivision and severity of allergic rhinitis, a stepwise therapeutic approach has been proposed.

7-The treatment of allergic rhinitis combines: Pharmacotherapy, Immunotherapy and Education.

8-Patients with persistent allergic rhinitis should be evaluated for asthma by means of a medical history, chest examination, and, if possible and when necessary, the assessment of airflow obstruction before and after bronchodilator.

9-Patients with asthma should be appropriately evaluated ( history and physical examination) for rhinitis.

10-Ideally, a combined strategy should be used to treat the upper and lower airway diseases to optimize efficacy and safety.

### Caesarean delivery and impact on gut microbiota and later allergy

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**Background:** There is a worldwide trend towards increasing rates of caesarean section. In the UK, caesarean section accounted for 2% of all births in 1953, 18% in 1997 and 21% in 2001. Marked differences are reported in rates from different healthcare sectors, reaching >>50% in some private hospitals. There is insufficient understanding why women may request a caesarean section in the absence of a medical reason. The convenience for the caregiver, the age, personal and birth experience, and the working field of the gynecologists influence the way they counsel their patients. However, both, the physician and the mother should take into account all risks and benefits for the health of the mother and the infant.

**Risk of allergic disease:** Several independent prospective cohort studies found a positive association between allergic sensitization against food allergens and inhalant allergens with caesarean section. In the German Infant Nutritional Intervention Program (GINI) study, healthy full-term neonates with at least one parent or sibling with self-reported allergic disease were enrolled. The analysis was restricted to 889 infants who were exclusively breastfed during the first 4 months of life in order to exclude the effect of formula feeding. After adjustment of possible confounders infants born with caesarean section had more often episodes of diarrhea (OR<sub>adj</sub> 1.45, 95% CI

1.00-2.10, with the highest effect during the first 4 months of life) and sensitization to food allergens (OR<sub>adj</sub> 2.05, 95% CI 1.10-3.8). In the second study, data from 2500 participants of the LISA cohort were analyzed with a follow up of 2 years. Mothers, who delivered by caesarean section lived more often in cities, had more often older children and a lower rate of breastfeeding. Caesarean delivery was associated with at least one episode of wheezing (OR<sub>adj</sub> 1.31, 95% CI 1.02-1.68), recurrent wheezing (1.41; 1.02-1.96), and allergic sensitization against food allergens (1.64; 1.03-2.63). In a population based cohort of 2803 children from Norway, an association between caesarean section and persistent verified cow's milk allergy was found. The effect was strongest in children with maternal allergy. While the association between caesarean section and sensitization to food antigens was supported in a recent systematic review, the association to atopic dermatitis is still controversial. In contrast, the risk for allergic rhinitis and/or asthma was increased. Although the effect size in most studies was modest, in the face of the high prevalence of allergic diseases in industrialized societies, this translates into a substantial excess burden of morbidity. A recent systematic review identified 23 studies looking at the mode of delivery and the risk of asthma in later life. Children who had been delivered by caesarean section had a 20% increase in the subsequent risk of asthma (OR=1.20, 95% CI 1.14, 12.6): One double-blinded placebo controlled randomized study looked at the effect of probiotic and prebiotic supplementation in preventing allergies and evaluated the results with respect to mode of delivery. Less IgE-associated allergic disease occurred in caesarean-delivered children who received probiotics compared to the placebo group (24.3% vs 40.5%; odds ratio, 0.47; 95% CI, 0.23% to 0.96%; p<0.05). The prevalence of fecal bifidobacteria was less and later in caesarean section infants receiving placebo compared to caesarean section infants receiving probiotics or in vaginally delivered infants receiving probiotics or placebo. These results underline the importance of the acquisition of the fecal flora and later risk of allergy, but they also implicate that providing certain probiotics to these at risk infants may decrease their risk for later allergy.

**Mode of delivery and gut microbiota:** The gut flora very early in life plays an important role for later immune response, different physiological functions as well as the integrity of the gut barrier. The gut is sterile in utero but immediately colonized with different strains of bacteria after birth. Several factors are of importance for the development of the gut flora. Circumstances associated with caesarean section alter or delay "normal" colonization of the gut micro flora of the infant. The biodiversity of the micro flora is much lower after delivery by section compared to vaginal delivery. The colonization of vaginally delivered newborns is influenced by the mother's vaginal, intestinal and perianal flora, whereas infants delivered by caesarean section are colonized with

bacteria from the hospital environment. Certain probiotics strains such as *Bacteroides* spp, *Bifidobacteria* and *Lactobacilli* are decreased or even absent during the first days of life in the gut flora of babies born by section delivery.

## Urticaria Angioedema in children

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The causes and pathogenesis of acute and chronic urticaria are different. Episodes of urticaria that lasts over 6 wks are chronic. Acute urticaria and angioedema are usually due to IgE-mediated reaction and their etiologies are foods, medications, insect stings, infections, contact allergy and transfusion reactions, but the causes of chronic urticaria are rheumatologic, endocrine, neoplastic and about 90% idiopathic. Often chronic urticaria is accompanied by angioedema. The diagnosis of urticaria is based on clinical features. In acute urticaria which the most common causes are drugs and foods, skin testing can help to find the causes based on the patient history, but it is necessary to prove the diagnosis by elimination diets and challenge the patient. In chronic urticaria the main etiology is autoimmune or idiopathic and the useful tests are autologous serum and plasma tests and detection of surface markers CD63 or CD203c. Acute urticaria is a self-limited illness and antihistamines are the main treatment. In chronic urticaria if the standard dose of H1 antihistamines could not control the symptoms, the combined use of H1 and H2 antihistamines like Doxepin is sometimes effective, but H2-antihistamines alone may exacerbate hives. In refractory cases other treatments like antileukotriene agents in combination with antihistamines, oral corticosteroids, and immunomodulatory agents are sometimes effective.

## Oral health in preschool children with asthma

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**Background:** Asthma is a chronic inflammatory disorder of the airways with a higher incidence among the preschool children. It has been hypothesized that the condition leads to the poor oral health, although different and some contradictory results have been reported in this field. The objective of the present study was to assess the oral health indices in the preschool children with the asthma referred to Asthma and Allergy Research Center and other clinics of the Tehran.

**Methods:** In this case-control study, 44 asthmatic and 46 matched control preschool children were selected aging 3-6 years old. Dental plaque, gingival inflammation, mouth breathing and the dmft indices were examined according to WHO criteria by means of observation and tactile tests. Furthermore, colony counting of streptococcus mutans and lactobacillus species were calculated in the cultured saliva specimens of the patients. The effects of different factors on the colony counts were statistically analyzed using linear regression analysis.

**Findings:** 79.5% of asthmatic and 78.3% of the control individuals showed gingival inflammation while 79.5% of asthmatic and 78.3% of controls showed plaque accumulation. The mean dmft of cases and controls were 3.34 and 3.0 respectively, while the mean colony counts of streptococcus and lactobacillus species were 138477.27 and 196840.91 respectively in the cases and 125847.83 and 182195.65 respectively in the controls. Mothers' education and asthma involvement significantly predicted the colony counts of streptococcus species while no factors significantly influenced the number of lactobacillus counts.

**Conclusion:** The results indicated that preschool children with asthma did not have higher prevalence of dental caries compared with the healthy individuals.

**Keywords:** asthma, dental caries, streptococcus mutans, lactobacillus

### Comparing effectiveness of two antihistamine drugs in treatment of allergic rhinitis

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**Background:** Allergic rhinitis is a common and challenging problem seen in children and involve near to 15 per cent of the population in industrialized countries. Symptoms usually appear in childhood first and then lessen by the age of 30 or 40. Decreasing the symptoms of this condition is one of the problems that a pediatrician may confront with. Since histamine is a substance which is responsible for most of the symptoms and can stored in mast cells, in almost all tissues of the body, all efforts is devoted to control producing it and to prevent releasing it. Choosing the best type of antihistamines with high effectiveness and low side effects is of the area of interests by researchers. Therefore we designed a clinical study to compare effectiveness of some of the famous antihistamines contains ketotifen that are available in our country. Zaditen tablets and elixir and also Ketotifen syrup are both contain the active ingredient ketotifen hydrogen fumarate, which is thought to work in a number of ways. It prevents the release of histamine from mast cells and also blocks H1 receptors, which result in blocking the actions of histamine, and helps prevent body from reacting to

allergens that would normally cause allergic symptoms.

**Methods:** A total of 80 children (45 boys and 35 girls) aged 5 to 12 years with allergic rhinitis were divided into two groups randomly. Group 1 received 5 mg/day Zaditen and group 2 received 5 mg/day ketotifen during 2 weeks. Successful treatment was defined as relieving symptoms and decrease allergic reaction according to parents and patients records.

**Findings:** There was significant difference between two types of above mentioned drugs in baseline characteristics including itchy and watery eyes, frequent sneezing, and runny nose and coughing. The Zaditen group showed a significantly greater reduction in symptoms than the ketotifen group did ( $P=0.001$ ). There was no significant difference in drug side effects between two groups.

**Conclusion:** It seems that Zaditen can clinically improve more effectively the symptoms of rhinitis allergic in comparing to ketotifen in young children. Further studies are needed to investigate the effects and side effects of these drugs.

**Keywords:** allergic rhinitis, antihistamine

### Immunological changes during Sublingual Immunotherapy in children with allergic rhinitis to rye grass

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**Background:** Sublingual immunotherapy (SLI) is a safe mechanism for treatment of some allergic disorders. In this study we investigated the effect of SLI on specific IgG, IgE, IL10 and TGF- $\beta$  levels.

**Methods:** This randomized double blind trial was performed 2 months prior grass pollen season till end of the season for 6 months. Twenty 5-18 yr old patients with allergic rhinitis to rye grass pollen were randomly received grass pollen or placebo extract and Immunologic investigation were done before and after treatment. Data were analyzed by SPSS software.

**Findings:** In our study we did not find significant difference in specific IgG and IgE levels before and after study and between two groups, however, there was significantly increasing of IL10 ( $P_v=0.035$ ) and TGF- $\beta$  ( $P_v=0.006$ ) levels during immunotherapy in treatment group.

**Conclusion:** This study shows effect of SLI on regulatory lymphocytes. It was safe and acceptable. We recommend this type of therapy for treatment of patients with allergic rhinitis.

**Keywords:** sublingual immunotherapy, immunologic markers

## Infectious Diseases & Vaccination Abstracts

### Prevalence of pediculosis capitis among primary school-aged children in Qazvin Township (I.R.Iran)-2010

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**Background:** Pediculosis (ie, Louse infestation) is an extremely common disease caused by three human ectoparasites involving head, body or pubis, among which *Pediculus humanus capitis* (head louse) is responsible for Pediculosis Capitis (Head Lice Infestation). The prevalence of this disease can reflect the situation of hygiene in communities. This study was performed to assess the prevalence of the disease among all primary school-aged children in Qazvin Township.

**Methods:** In this descriptive, cross-sectional study all primary school-aged children of both rural and urban areas of Qazvin Township were examined for Pediculosis Capitis by health staffs during September to December of 2010. All data was registered and analyzed based on gender and the urban or rural areas of living. P values less than 0.05 were considered significant.

**Findings:** Of all 38195 primary school-aged children, 31171 cases were living in urban areas, among which the prevalence of the disease were 1.67% (251 in 15070) in girls and 0.22% (35 in 16101) in boys. The number of all children in rural areas was 7024 including 3352 girls and 3672 boys, among whom the prevalence was 4.21% (n=141) and 0.16% (n=6), respectively. Significant differences were found between urban and rural children (P<0.001), two sexes in urban area (P<0.001) and in rural area (P<0.001). Although a significance was found in the girls of urban and rural areas (P<0.001), no significance was between the boys of the two areas.

**Conclusion:** Pediculosis Capitis is still a common disease among children and needs more attention by parents and physicians.

**Keywords:** pediculosis, louse infestation, children, Qazvin

### The use of polymerase chain reaction assay versus cell culture in detecting neonatal chlamydial conjunctivitis

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**Background:** One of the most common bacterial infections causing ophthalmia neonatorum is *Chlamydia trachomatis*. Very few studies have been done in Iran to determine the prevalence of *Chlamydia trachomatis* causing ophthalmia neonatorum using cell culture and polymerase chain reaction methods. This study aimed to evaluate the prevalence of neonatal chlamydial conjunctivitis by these methods, at two hospitals, in Tehran, Iran.

**Methods:** From March 2008 to May 2009, of the 2253 neonates, 241 (10.7%) with clinical findings of conjunctivitis were included in this study. A total of 241

conjunctival swabs were investigated by cell culture (as the gold standard test), polymerase chain reaction and Giemsa staining.

**Findings:** Cell cultures were positive for *Chlamydia trachomatis* in 31 (12.9%) neonates. Also *Chlamydia trachomatis* was positive in 40(16.6%) and 18(7.5%) neonates by polymerase chain reaction and Giemsa staining respectively. The sensitivities of polymerase chain reaction and Giemsa staining were 100% and 58.1% respectively.

**Conclusion:** Regarding to high prevalence of neonatal chlamydial conjunctivitis by cell culture, and high sensitivity and specificity (100% and 95.7% respectively) of polymerase chain reaction in the present study, polymerase chain reaction can be considered as a proper diagnostic method for detection of *Chlamydia trachomatis*.

**Keywords:** ophthalmia neonatorum, chlamydia trachomatis, cell culture, PCR

### Measurement of ferritin level in csf of children with bacterial or aseptic meningitis in Bandar Abbas children's hospital

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**Background:** Bacterial meningitis is one of the most potentially serious infections occurring in children. This infection is associated with a high rate of acute complications and risk of long-term morbidity. The diagnosis of meningitis is confirmed by analysis of the CSF. Early and rapid therapeutic approach to patients with presumed bacterial meningitis is essential.

**Methods:** In this Descriptive Cross-Sectional study, 163 children in 1 month to 17 years of age were assigned. To determine whether or not the ferritin level in cerebrospinal fluid (CSF) can be used as a marker for the differential diagnosis of meningitis, 163 subjects with clinically well-characterized diagnosis were classified into three groups: bacterial meningitis (n = 33; mean age: 72 months), control (n = 118; mean age: 15 months), and an aseptic-meningitis group (n = 12; mean age: 21 months). The differentiation of bacterial from aseptic meningitis has traditionally been based on the clinical setting, and cerebrospinal fluid (CSF) studies, including the total and differential leukocyte counts, Gram stain, glucose, and total protein. The level of ferritin in CSF was determined by means of a latex photometric immunoassay. The statistical significance of the data was analyzed with the T-test and k-score.

**Findings:** This study indicated that (1) the level of ferritin in CSF in the control group: (9.08+/-4.1 microg/l, P < 0.05); (2) the level of ferritin in CSF in the bacterial meningitis group: (429+/-1348 microg/l, P < 0.01); and (3) the level of ferritin in CSF in the aseptic-meningitis group: (19.73+/-35.58 microg/l).

**Conclusion:** Only modest elevations in CSF ferritin concentration were observed in patients with aseptic meningitis. On the other hand, marked elevations ranging between 5 and 5700 micrograms/l (mean: 429 micrograms/l) were observed in patients with bacterial meningitis. Results of the study indicate that CSF ferritin levels are a valuable adjunct in the early evaluation of patients presenting with meningism.

**Keywords:** ferittin, csf, meningitis, pleocytosis

## Nutrition & Tuberculosis

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The risk of complications including death from infections is influenced by the nutritional status of an individual, but the nutritional status of an individual and utilization of nutrients are also adversely affected following an infection.

**Protein – energy malnutrition:** Under nutrition can be considered as one of the risk factors in the development of TB, since under nutrition is known to adversely affect the immune system. Still there remains a question as to whether malnutrition predisposes to tuberculosis, or exists between tuberculosis, HIV and malnutrition such that one is promoting the other(s).

**Micronutrients and immune function:** Since most of the reliable data on the role of micronutrients in immunity to tuberculosis have the conclusions draw from such studies must be interpreted cautiously .it is known that deficiencies of zinc, vitamin D, vitamin A, vitamin C , and iron can cause profound impairment of immunity (and precisely the cell types that are critical to “ fight” tuberculosis ). It is therefore not unreasonable to propose that dietary deficiencies of these micronutrients may be important determinants of tuberculosis resistance.

**NUTRITIONAL NEEDS OF CHILDREN WITH TUBERCULOSIS:** The rapid growth periods of infancy and childhood can only be maintained if a child’s nutrient intake is optimal .Insufficient intake can cause impaired growth and result in diseases such as malnutrition. Because of the previously described link between malnutrition and TB, all children presenting with malnutrition or with failure to gain adequately in weight must be evaluated for possible TB. Studies of children presenting with different forms of malnutrition indicate that TB can be found in 12-30% of cases. When weight gain patterns of children with TB are studied, it is evident that 66% of cases fail to gain weight or show loss weight prior to diagnosis.The provision of adequate energy and nutrients for a child with TB is very important, since the child has increased requirements as a result of both growth and TB .In meeting their requirements, it should be born in mind that children have limited stomach capacity and appetites and as such meeting nutrient requirements presents a difficult challenge .It is therefore necessary to modify and plan the diet carefully to ensure adequate intake of food. The best way to monitor weight gain and detect malnutrition in children is to use the aid of a “Road to Health” card (curve that illustrate the growth pattern of a child).Tuberculosis often adversely affects nutritional intake, due to poor appetites, making patients at risk for malnutrition. Six smaller meals per day are indicated in stead of three meals. The meals should be appetizing in appearance and taste and provide enough energy and protein. Commercially available high energy and protein drinks (balanced in terms of micro – and macronutrients) may be used effectively to meet the increased requirements. Household ingredients, such as sugar, vegetable oil, peanutbutter, eggs and nonfat dry milk powder can be used in porridge, soups, gravies, casseroles or milk based drink to increase the protein and energy content without adding to the bulk of the meal. At least 5-6 portions of fruit and vegetables should be eaten per day.

Pure fruit juice can be used to decrease the bulk of the diet. Approximately ½ a glass of fruit juice is dietary to one portion of fruit.The best dietary sources of vitamin B6 (pyridoxine) are yeast, wheat, whole grain cereals, legumes, potatoes, bananas, and oatmeal. Adequate fluid intake is important due to increased losses (at least 6-8 glasses per day). A good multivitamin and mineral supplement, providing 50% -150% of the recommended daily intake, is advisable since it will be most unlikely that a person with TB will be able to meet the increased requirements for vitamin and minerals. Coenzyme Q10, 75 mg per day, helps carry oxygen to tissues for healing. Garlic tablets, 2 tablets with meals, helps keep infection in check and stimulates immune function. L – Cysteine and L – Methionine (amino acids), 500 mg 2 times per day, protects the lungs and liver by detoxifying harmful toxins. Protein (free form amino acids), taken as directed on the label, are needed for tissue repair. Selenium, 200 mcg. Per day, protects against free radicals and promotes a healthy immune system. Vitamin A emulsion, 20,000 IU per day, or vitamin A capsules, 25,000 in capsule form, is vital for healing of lung tissue. Vitamin B complex or injectable vitamin B is recommended. Vitamin D capsules 400 IU per day is essential for utilization of calcium and phosphorus.Vitamin E capsules, 400 IU per day, increase slowly to 1,500 IU per day, helps protect the lung tissues and provides oxygen to the cells. Germanium, 200 mg per day, absorbs excess hydrogen ions and removes them from the body, making oxygen more available to the tissues. Multimineral supplement, taken with meals recommend for strength and healing. Calcium, 1,000 mg per day and Magnesium 750 mg per day Is needed. Proteolytic enzymes taken between meals, is needed to keep the inflammation check, digest essential nutrients, and improve absorption. Multidigestive enzymes, taken with meals. Zinc, 50 – 80 mg per day, promotes immune function and healing.The chief therapeutic agent needed for treatment of TB is calcium. In the dietary regimen at least one liter of milk should be taken daily. The diet should consist of mainly law vegetables and Fruits. Eat yogurt, fish, whole grains, garlic and eggs recommended. Drink pineapple juice and fresh carrot juice and fresh fruits are useful. The custard apple is regarded as an effective food remedy for TB. The Ayurvedic practitioner prepares Fermented liquor called sitaphalasava from the custard apple for use as medicine in the treatment of tuberculosis.

## Diagnosis of Helicobacter pylori Infection by Invasive and Noninvasive Tests

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**Background:** Invasive and noninvasive tests have been developed for the diagnosis of Helicobacter pylori infection, but all of the tests have their limitations. We conducted a study to investigate and compare the suitability of RUT, serology, histopathology and stool antigen tests

with PCR for detection of *H. pylori*, and correlate the diagnostic methods with PCR.

**Methods:** Eighty nine patients (28 children, 61 adults) referred to the Firoozgar Hospital and Children Medical Center Hospital for diagnostic upper gastrointestinal (UGI) endoscopy entered the study and noninvasive tests such as immunoassay for serological antibodies against *H. pylori* and detection of its antigen in feces were measured. The biopsies were utilized for histological examination, urease rapid test and PCR.

**Findings:** The *H. pylori* statuses were evaluated by the positivity of ureC PCR in biopsy specimens, 53 subjects of whom were *H. pylori* positive. Histopathology showed high overall performance in adults and children with sensitivity 100%, specificity 90%. Sensitivity, specificity, and accuracy for stool antigen test were 87.8%, 75% and 82%, respectively. Correlation of RUT, serology (IgG), histopathology and stool antigen tests with PCR were 0.82, 0.32, 0.91 and 0.63, respectively.

**Conclusion:** The RUT and histopathology while being as accurate as the PCR of biopsy are more cumbersome to perform. Commercial EIAs to detect *H. pylori* antibodies in serum have a lower accuracy, particularly in younger children. Stool antigen test can consider as a suitable noninvasive test for detection of *H. pylori* infection.

**Keywords:** *H. pylori*, diagnosis

### Frequency of type 1 fimbriae among *E.coli* subtypes isolated from patients with urinary and gastrointestinal tract infection

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**Background:** The gut constitutes an important reservoir of bacteria causing extra intestinal infections such as urinary tract infection (UTI). We assessed multiplex PCR assays to detect type 1 fimbriae among *E.coli* subtypes in children with symptom of urinary tract or gastrointestinal infection.

**Methods:** In this study, 101 urine and rectal swab samples of children were collected with symptom of urinary tract or gastrointestinal infection. We designed a multiplex PCR for the detection of all categories of *Escherichia coli*.

**Findings:** Among 101 rectal swab specimens tested, 48.5% had fimH gene, 2% were EHEC, 3% ETEC, 4% EAEC; we also detected mixed infections, 1% with ETEC and EHEC, 4% EHEC with fimH gene, 11.9% ETEC with fimH gene, 5.9% EAEC with fimH gene, 6.9% EHEC and ETEC with fimH gene, 1% EHEC and EAEC with fimH gene, 2% ETEC and EAEC with fimH gene. From 101 urine specimens tested 56.4% had fimH gene, 2% were EHEC, 2% ETEC, 3% EAEC; we also detected mixed infections, 1% with EAEC and EHEC, 7.9% EHEC with fimH gene, 9.9% ETEC with fimH gene and 3% EAEC with fimH gene. EIEC and EPEC were not found among the strains tested.

**Conclusion:** As our understanding of the molecular aspects and detection of more than 80% fimH gene in *E. coli* strains it has been possible to design vaccines that target adaptive responses against specific bacterial proteins such as FimH tip adhesin of type 1 fimbriae or FimH antagonist.

**Keywords:** *E. coli* subtypes, multiplex PCR, type 1 fimbriae

### Clinical manifestations, laboratory findings and therapeutic regimen in childhood brucellosis in Children Medical Center during 2002 to 2010

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**Background:** Brucellosis is a known widespread zoonosis and it is endemic in Iran. Although Malta fever is considered as an occupational disease in adults, there are many reports of childhood brucellosis in literatures. The aim of this study was to review the clinical manifestations, laboratory findings and therapeutic regimen in childhood brucellosis to help others to make early diagnosis and select the best and appropriate treatment modalities.

**Methods:** In this retrospective study, we reviewed medical records of 34 consecutive children whose diagnosis of brucellosis was made from April 2002 to September 2010 from 10864 admitted patients in Children Medical Center, Tehran, Iran.

**Findings:** Of 34 patients from 2 to 14 years old, 22 (65%) were boy, 16 (47%) patients were 2 to 5 years. 22 (65%) children were admitted during spring and summer. The most complaints and symptoms of patients were fever, anorexia, fatigue and arthralgia. Clinical findings at admission in addition to fever were arthritis; splenomegaly and hepatomegaly. A combination of Trimetoprim sulfamethoxazol or doxycyclin plus rifampin was prescribed during 8 Weeks and one relapse occurred because of early interruption of treatment. No adverse outcome was experienced by our patients during routine outpatient follow up.

**Conclusion:** Combination of prolonged fever, joint involvement and organomegaly also should raise possibility of infection with *Brucella*. Appropriate treatment regime by more tolerable oral drugs with duration for at least 8-week period is recommended

**Keywords:** brucellosis, diagnosis, treatment

### Determination of prevalence of helicobacter pylori infection in infants of Shiraz

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**Background:** More than 80% of population in developing countries is *H.pylori* infected and studies show its acquisition in early childhood, but the exactly time is not clear. The aim of this study was determination of the acquisition time of *H.pylori* infection. This study with cohort method was done on 82 infants selected randomly in 4 hospitals in Shiraz. Stool Sampling was done in 5 age groups. Eliza was used for detection of *H.pylori* antigen in stool (HPSA).

**Findings:** *H.pylori* was detected in stool samples of 23% of 7-14 days infants, 17% 1-2 month infants, 18% 3-4 infants, 16.7% 5-6 month infants and 13.7% 7-8 month infants. P value was not significant in age groups that showed the risk of infection doesn't increase in these age intervals. Also gender, birth location, delivery method and rank of birth were not identified as risk factor to *H.pylori* infection. In this study 51 % of infants was persistently negative, 3.6% persistently positive and 45% transiently positive.

**Conclusion:** It is suggested that in interpretation of

noninvasive tests of H.P, probability of transient colonization must be considered.

**Keywords:** H.pylori, infants, acquisition time, Shiraz

### Evaluation of lumbar puncture necessity in febrile convulsion

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**Background:** Febrile Convulsion (FC) is a frequent cause of hospitalization. Meningitis is one of the most important causes of febrile convulsion which is diagnosed with lumbar puncture (LP). The necessity of LP is still debating. The purpose of the current study was to evaluate the utility of LP in management of febrile seizure.

**Methods:** This retrospective study included 515 children from 6 months to 5 years over two-year periods from March 2009 to March 2011 who were admitted at the Qazvin children hospital with febrile convulsion. Relevant data were collected from medical files of patients. We analyzed their age, temperature, family and personal history, duration of seizure, cause of fever, WBC, ESR, CRP for each cause of fever and results of LP.

**Findings:** In the sex distribution, 279 patients (54/2%) were males. Patients (22%) underwent LP and 10 of them (2%) had abnormal LP and therefore had meningitis. 451 (88.1 %) of the children had temperature below 39 C. 440 patients (85.1%) had simple FC while complex FC was recorded in 77 patients (14.9%). The types of seizure was generalized tonic-clonic, focal and other types in 501 (97.3%), 4(0.8%) and 10 (1.9%) respectively. 129 (25%) had personal history of FC. Upper respiratory tract infection in 111 cases (21.6%), gastroenteritis in 70 (13.6%), otitis media in 66 (12.8%) and meningitis in 10 patients (2%) were the final diagnosis respectively. Urinary tract infection (UTI), pharyngotonsillitis, pneumonia, vaccine and exanthem subitum were observed in a few number of the children. All subjects with meningitis were under 2 year old. Only 1 patient had neck stiffness. Mean value of WBC count in the meningitis was greater than other causes of FC ( $p < 0/05$ ) except UTI and exanthem subitum. There was no significant difference between CRP and ESR in the meningitis and other causes of FC.

**Conclusion:** LP is a useful method for diagnosis of meningitis in patients under 2 years of age especially with the leukocytosis. In other patients, LP should be discussed case by case.

**Keywords:** febrile convulsion, lumbar puncture, meningitis

### The bacterial colonization of health care workers' cell phones in Besat hospital, Hamedan, Iran.

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**Background:** Nowadays, life and working without cell phones seems to be difficult for most of the people, and it is not an exception for health workers. From recent studies we know that health worker's ties, sleeves and ... increase the risk of bed to bed contaminations in hospitals. In this survey we compare the bacterial contaminations of hospital staffs cell phones with general population's.

**Methods:** Samples were collected from 125 hospital staffs cell phones and 125 cell phones of non-hospital clerks as

control group. 15 physicians (12%), 10 residents (8%), 31 interns (24.85) and 69 nurses (55.25) were among the case group. Cotton swaps were rotated over all surfaces of cell phones then inoculated into transport mediums. Isolated bacteria were identified from subcultures.

**Findings:** 99.2% of cell phones were contaminated in case group, while it was 93.6% in control group. The most common organism in both groups was coagulase negative staphylococcus (82.4% in hospital group and 73.2 % in control group) followed by staphylococcus aureus (20% and 12%), Pseudomonas species (10.4% and 1.6%), Bacillus species (4% and 0%), corynebacterium species (3.2% and 0.8%), E.coli(1.6% and 1.6%), salmonella (0.8% and 1.6%), klebsiella (0% and 2.4 %), and acintobacter (0.8% and 0%).The resistance to commonly used antibiotics in both groups was examined and results were declared .

**Conclusion:** The results of this survey showed that hospital staffs cell phones are more contaminated than other's cell phones, and it may be a source of hospital acquired infections.

**Keywords:** cell phones, bacterial contamination, health care workers, antibiotic resistance.

### Clinical considerations in pharmacotherapy of anaerobic infections

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Anaerobes encompass a common cause of human infections. Antibiotics comprise one of the treatment modalities applied in the management of anaerobic infections. In this regard, antibiotics are usually selected without further in vitro susceptibility tests. Thus it is prudent that clinicians be familiar with factors to consider when selecting and using antibiotics with anaerobic coverage. Antibiotics available against anaerobic infections include metronidazole, the carbapenems, chloramphenicol, combination beta-lactam /beta-lactamase inhibitors, clindamycin and selected cephalosporins. In this presentation, clinical implications, safety profile, pharmacokinetics and comparison of antibiotics with anaerobic coverage with an emphasize in pediatric population will be reviewed. In addition, an overview on anaerobic bacteria and their resistance pattern will be provided. Sciences \*\*\*

**Keywords:** anaerobic infections, metronidazole, antibiotics

### Post BCG vaccination disseminated lupus vulgaris

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**Background:** Lupus vulgaris is the most prevalent and progressive form of cutaneous tuberculosis occurring in a person with moderate or high degree of immunity. Lupus vulgaris is typically characterized by strongly positive montoux test, enormous lymphocytes in the granuloma, absence of tubercle bacilli, negative culture and normal immune profile. The earlier lesion is usually solitary, red or brown plaque with gelatinous consistency and well defined margin. In car disseminated type multiple lesion are seen.

**Case report:** The patient was a 2 year old girl from Khorram abad city who presented with multiple lesions. B.C.G. vaccination has been done at birth on left deltoid. Initial lesion was at site of B.C.G vaccination which appeared 1 month after vaccination. She was ill looking, pale and had poor weight gain. She had also non pitting edema in the lower extremities which its cause was unknown, edema was disappeared after treatment. She also had microcytic-hypochromic anemia with hemoglobin of 9 and ESR of 84. Biopsy was done from initial lesion. Histopathological examination showed granulomatous changes which was infiltrated with epitheloid cells, langhans giant cells and other inflammatory cells in dermis. Acid fast bacilli were negative in tissue but tissue culture was not performed. The diagnosis was based on clinical examination, histopathology and response to antituberculous therapy. She was took antituberculous therapy with four drugs and her lesion rapidly showed response with healing of them after 2 months and she gained one kg. Her treatment was continued with 2 drugs for 4 months. Now the patient is all right and all lesions are healed with scar formation. Discussion: Specific complications comprise tuberculosis processes caused by B.C.G organism. Incidence is difficult to ascertain, but it is extremely low in comparison to the great number of vaccinations performed. The incidence of post vaccinal lupus vulgaris was estimated to be from 5 to 10 per million. In our study patient was a 2 year old girl who had multiple lesion on her left upper arm, axilla and behind the left ear with initial lesion at the site of B.C.G vaccination with negative PPD and good response to antituberculosis therapy.

Key words: BCG vaccination, lupus vulgaris

### **Nebulized 3% hypertonic saline solution treatment in children with acute bronchiolitis in ED and in hospitalized children with viral bronchitis: Is there any difference?**

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**Background:** The objective of this study was to determine the efficacy of nebulized 3% hypertonic saline solution in the treatment of children hospitalized with mild to moderate viral bronchiolitis in the emergency department and in children who admitted in pediatric ward.

**Methods:** In a randomized controlled trial 60 2-24 months children with mild to moderate bronchiolitis were divided into 2 groups. They received inhalation of 0.15mg/kg salbutamol dissolved in either 3cc of 0.9% normal saline (control group, n=30), or 3cc of 3% hypertonic saline (treatment group, n=30). Three doses of each drug were given at 20 minute intervals. Respiratory rate, RDAI score and clinical score were evaluated before initiation of treatment protocol and 10 minutes after administration of the last dose to assess the response to therapy. The decision for further management was taken on the basis of this evaluation. Children who showed a sustained decrease in tachypnea and respiratory distress and who could tolerate oral treatment well were sent home on oral medication after an observation period of 3 hours. Children who did not improve or showed deterioration were admitted for further management.

**Findings:** Sixty patients 2-24 months with mild to moderate bronchiolitis evaluated. The initial heart rate,

respiratory rate, RDAI score, clinical score and total score of the two groups were comparable. Twelve patients of treatment group (40%) and 11 patients of control group (36.7%) discharged from emergency department after 4 hours. In ED, both hypertonic 3% saline and 0.9% saline caused significant improvement in mean symptoms score and oxygenation and there was no statistically significant difference between two groups (P value>0.05). Eighteen patients (60%) of treatment group and 19 patients (63.31%) of control group admitted to pediatric ward for further management. There was no significant difference between admission rates of two groups (P value>0.05). Also there were no significant difference between two groups regarding the time of remission of cough and wheezing and pulmonary physical signs (P value>0.05). Mean length of hospital stay was 3.88±1.77 in treatment group and 4.63±1.97 in control group (P value>0.05).

**Conclusion:** There was no difference between nebulized hypertonic saline and normal saline in the treatment of children with acute bronchiolitis in the emergency department and in hospitalized children with bronchiolitis.

**Keywords:** bronchiolitis, hypertonic saline, normal saline, emergency department, hospitalized

### **Epidemiological and clinical features of Brucella arthritis in 24 children**

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**Background:** Brucellosis is considered the leading zoonotic disease of the Middle East. The disease has a wide spectrum of clinical manifestations and can result in complications with severe morbidity. The aim of this study was to evaluate the frequency, distribution and characteristics of arthritis in Iranian children with brucellosis.

**Methods:** A retrospective descriptive study conducted in a referral children center in Tehran from 1997 to 2005. Arthritis in children with brucellosis who were admitted to a specialized hospital was detected by clinical signs of the involved joint(s) and characteristics of joint fluid aspiration. Socio-demographic information was recorded.

**Findings:** Of 96 patients diagnosed with brucellosis, 24 (25%) had Brucella arthritis 14 (58.3%) males and 10 (41.7%) females. Most common manifestations were fever in 21 patients (87.5%) and fatigue in 18 patients (75%). Monoarthritis was recorded in 15 patients (62.5%) of the cases with involvement of the knee in 8 (45%) and hip in 5 (29%), the ankle in 2 (8%) patients while 9 (37.5%) patients suffered from polyarthritis. None of the patients had axial joints involvement. Seventy-five percent of the subjects (18 patients) were from urban areas and 66.7% (16 patients) had consumed un-pasteurized cheese. Recurrence was not seen in any of the 24 patients who received a combination of co-trimoxazole for 6 weeks and gentamicin for 5 days.

**Conclusion:** Childhood brucellosis is a challenging disease in Iran that has serious complications like arthritis. Therefore all physicians who work in

endemic areas should be familiar with this disease and consider the possibility of brucellosis in all children who present with arthritis and arthralgia.

**Key words:** brucellosis, arthritis, brucella, epidemiology, children

### **Candida peritonitis after intestinal perforation**

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**Background:** *Candida* spp. is a component of the endogenous flora of the gastrointestinal tract and develops invasive candidiasis. The clinical and microbiological diagnosis of *Candida* peritonitis can consequently form part of the etiology of almost any type of abdominal infection. Therefore *Candida* spp. can isolate in secondary peritonitis due to intestinal perforation. A substantial number of patients become colonized with *Candida* spp. after

abdominal surgery, but only a minority subsequently remains problematic. The mortality rate of fungal peritonitis has been reported as approximately 11–45%.

**Case report:** Here, There is a report of the 3-year-old female with *Candida* peritonitis secondary to intestinal perforation after surgery of umbilical hernia. She presented with abdominal pain, nausea, vomiting, and fever 4 days after surgery. She was under gone surgery and empirically started on an antibiotic regimen. Despite the empiric combined antibiotic treatment, the patient's clinical status did not improve. On the ninth day after her admission to the hospital, yeast growing in the peritoneal fluid culture, so intravenous antifungal therapy with amphotericin B was started. After 3 weeks, the patient's clinical condition was recovered and she was discharged without any problem.

**Conclusion:** In conclusion, in peritonitis after surgery not responded to standard antibiotic treatment, fungal peritonitis should be considered. Antifungal treatment for severe cases of *Candida* peritonitis remains the standard care.

**Keywords:** antifungal therapy, *candida* spp, fungal peritonitis

## Neonatology

### Glomerular function in neonates

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GFR is low in fetal and neonatal life. GFR increases after birth in term and preterm neonates and reaches approximately 20 ml/min/1.73 m<sup>2</sup> at 1 month of age in term neonates. Various methods have been used to measure GFR in neonates such as inulin clearance, creatinine clearance and cystatin C. Inulin clearance is a cumbersome, costly and difficult method. The GFR based nuclear medicine scan is not recommended in neonates. Serum creatinine is the mostly used GFR marker in all age groups including neonates. Serum creatinine in neonates has some drawbacks. Serum creatinine concentrations are influenced by many factors. Muscle mass of body, gestational age, sex, renal tubular reabsorption and secretion and maternal creatinine all affect the serum creatinine concentrations in neonates. To measure GFR, it has been suggested that other markers which remain stable over time and are not affected by muscle mass, tubular reabsorption and/or secretion should be used. Cystatin C has these characteristics but there are some problems using cystatin C as a renal function marker in neonates. Additionally the numbers of studies focus on the use of cystatin C in neonates are low. Thus more studies are required to determine cystatin C normal ranges and to investigate whether cystatin C can replace other tests such as serum creatinine as a renal function marker in newborns as well as assessing newer renal function tests in this age group. Beta trace protein is a low molecular weight glycoprotein that is suggested as a novel GFR marker. To our knowledge there is not any investigation about this marker in neonatal age group. It appears the new marker need to be assessed more in neonates for deciding to replace serum creatinine by them.

**Keywords:** neonate, GFR, cystatin c, beta trace protein

### Investigation of frequency and risk factors of macrosomia in infants of Asali hospital of Khoramabad city

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**Background:** Macrosomia is a term applied to newborns with a birth weight of 4000gr or above. Perinatal mortality and morbidity is increased in fetal macrosomia. Clavicular fracture, injury to brachial plexus, and hypoglycemia are important side effects. Mother's age, body mass index of mother, weight gain in pregnancy, mother's height, diabetes, history of macrocosmic delivery, gestational age, parity, and fetal sex are factors causing macrosomia. The purpose of this cross-sectional study was to evaluate the frequency and risk factors of macrosomia in Asalian hospital of Khorramabad in the summer of 2010.

**Methods:** The data collection instrument was a questionnaire containing 10 variables as the risk factors of macrosomia. The data were analyzed using the SPSS software.

**Findings:** 59 cases of macrosomia were found in 500 living births. The results showed that the frequency of macrosomia was 11.8%. 69.5% of the neonates were male and 30.5% were female. Maternal risk factors were mother's age at pregnancy, mother's obesity (BMI $\geq$ 30), weight gain more than 18 kg during pregnancy, history of diabetes mellitus, history of macrosomia, prolonged gestational age, and multiparity (parity $\geq$ 5). There was no significant relationship between mother's job and macrosomia.

**Conclusion:** The prevalence of macrosomia in Khorramabad was high (11.8%). Preventing pregnancy in mothers over 35 years of age by contraception ways, preventing maternal obesity before pregnancy, and control of blood glucose during pregnancy by suitable diet and insulin therapy are recommended to prevent macrosomia.

**Keywords:** macrosomia, body mass index (BMI), diabetes

### Prevalence of vitamin D deficiency in mothers of infants hospitalized in neonatal intensive care unit (NICU) with delayed hypocalcaemia in Tehran's Ali Asghar Hospital

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**Background:** Maternal vitamin D deficiency is one of the major risk factors for neonatal vitamin D deficiency and hypocalcaemia. Vitamin D deficiency is more common in mothers who receive few vitamins D from dairy or supplement during pregnancy or are inhabitants of Middle East or south Asia (less exposure to sunlight due to their clothing style). The aim of this study was to determine the relationship between delayed neonatal hypocalcaemia with maternal vitamin D deficiency.

**Methods:** This Cross-sectional study included all preterm and term neonates admitted to Ali Asghar Hospital in Tehran with delayed hypocalcaemia (after first 96 hours). The sample size was 100 infants which were selected randomly. Demographic, clinical and Para clinical data including: Ca, Ph, PTH, Vitamin D in neonates and their mothers were recorded from hospital files. Data were analyzed by T-test and Pearson correlation. Values less than 0.05 were considered significant.

**Findings:** Fifty infants were male (50%) and 50 were female (50%). 67 infants (67%) were term and 33 infants (33%) were preterm. The mean serum calcium in infants was 6.49 $\pm$ 0.68 mg/dl with range of 4.3-7.8 mg/dl. 85% of the newborns and 74% of the mothers had vitamin D deficiency. 100% of infants whose mothers had severe vitamin D deficiency had hypocalcaemia. Significant difference between the mean values of serum Ca (6.67 in term infants vs. 6.12 in preterm infants) and vitamin D (16.34 in term infants vs. 20.18 in preterm infants) in term and preterm infants was seen (p=0.000 and p=0.01 respectively). There was a significant correlation between vitamin D levels in infants and mothers, (p=0.000, r=0.789), but there was no significant correlation between serum calcium levels in newborns and mothers (p=0.008, r=0.936).

**Conclusion:** Our results show the high prevalence of vitamin D deficiency in infants and strong correlation between neonatal vitamin D and maternal vitamin D values. By attention to our social and cultural beliefs and clothing style of the Iranian women and their nutritional deficiencies before and during pregnancy it seems necessary to pay more attention to this problem in our health policies. Therefore changes in supplementation protocol should be considered in pregnant women and infants.

**Keywords:** delayed hypocalcaemia, vitamin D deficiency, infants, vitamin D

### Relative frequency and risk factors of retinopathy of prematurity among preterm infants in Rasht

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**Background:** Retinopathy of prematurity (ROP) is an important preventable cause of blindness. The purpose of this study was to determine the incidence and risk factors of ROP among preterm infants referred to Amir Almomenin Hospital -Rasht.

**Methods:** This is a cross sectional Retrospective study of all preterm infants with birth weight  $\leq 2500$ g and / or gestational age  $\leq 36$  weeks who were referred to Amir Almomenin Hospital for screening of (ROP), over 5 years from Mehr 1384 to Mehr 1389 . Possible risk factors and eye exam results were recorded and analyzed using Chi square, pair T-test and logistic regression.

**Findings:** Among 310 infants, retinopathy of prematurity was diagnosed in 64 infants (20.6%) of whom 48% had stage I disease, 29% were at stage 2 and 23% were at stage 3 and more. The mean gestational age (GA) and birth weight (BW) for the ROP –positive infants were 30.18 (SD 2.28) weeks and 1422.8 g (SD 420.8) respectively. Low birth weight, Low gestational age, oxygen therapy, phototherapy, blood transfusion and apnea were the risk factors found to be associated with the disease. However, with logistic regression analysis, only low gestational age and Low Birth weight were independently associated with ROP.

**Conclusion:** The frequency of ROP in this study emphasizes the importance of neonatal screening and the wider range of GA (25-35 weeks) and BW (720-3000gr) of infants developing ROP suggested that western screening Guidelines may require modifications for our country. Low birth weight and gestational age were significant risk factors for the disease.

**Keywords:** preterm infant, retinopathy of prematurity, risk Factor

### Comparison of molecular mutations of G6PD gene between icteric and nonicteric neonates

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**Background:** Jaundice is a common disorder in neonates and G6PD deficiency could result in kernicterus. The aim

of this study was to compare of G6PD mutation in icteric and non icteric neonates.

**Methods:** This case-control study was done in 50 icteric neonates with G6PD deficiency that needed phototherapy or exchange selected as case group and 50 non icteric neonates with G6PD deficiency that were admitted to NICU and newborn ward with non icteric etiology selected as control group. 2 ml peripheral blood samples were collected in EDTA tube after obtaining parent consent. G6PD deficiency was diagnosed with FST (Flourescent Spot Test) and bilirubin was measured with DSA method. In the first step, all samples were evaluated for Mediterranean mutation and then negative samples were tested for Chatham mutation and finally all remaining samples were tested for Cosenza mutation.

**Findings:** In non icteric group 54% were Mediterranean, 18% Chatham, 28% Cosenza negative and in icteric group 56% were Mediterranean, 32% Chatham, 12% Cosenza negative and the distribution of Mediterranean and Chatham mutations were not significantly different between two groups ( $p>0.05$ ) and distribution of rare mutations (Cosenza negative) was significantly different between icteric and non icteric group ( $p<0.05$ ). Exchange transfusion in neonates with chatham mutation was needed significantly less than phototherapy ( $p<0.05$ ).

**Conclusion:** Mediterranean mutation was the most frequent mutation in icteric and non icteric neonates of our region, but rare mutations (Cosenza negative) were more prevalent in non icteric group. Need to exchange transfusion was less in chatham mutation.

**Keywords:** icter, G6PD deficiency, Mediterranean mutation

### Hyperglycemia as a risk factor for retinopathy of prematurity

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**Background:** Several risk factors are attributed to retinopathy of prematurity (ROP). This study was done to determine any relation between the hyperglycemia and ROP in premature infants.

**Methods:** In a retrospective case-control analysis, all infants with a gestational age (GA)  $<34$  weeks and a birth weight (BW)  $<2000$ gr admitted and treated in NICU at Amirkola Children's Hospital, Iran, during March 2007-September 2010 were included. Hyperglycemia was defined as a plasma glucose level of  $>150$ mg/dl during the hospital stay. The duration of being hyperglycemic was also recorded. All of these neonates were examined for ROP by a retinologist unaware of group assignment. The difference in the ROP incidence and also the severity of ROP compared between the hyperglycemic and non-hyperglycemic infants. Matching was done for GA, BW, and also Clinical Risk Index for Babies (CRIB) score. Data analyzed by t-test, Chi square and logistic regression test and a  $P<0.05$  considered being significant.

**Findings:** Totally 155 neonates were examined. Seventy (45.2%) of them developed ROP but 85 (54.8%) had no evidence of ROP. The frequency of hyperglycemia in patients with ROP was 33(47.2%), but in patients without ROP, hyperglycemia occurred in 5 (5.9%) ( $P=0.0001$ ). Severity of ROP showed no significant differences between two groups ( $P=0.35$ ). Logistic regression for both GA and

BW showed the significant correlation coefficient between hyperglycemia and ROP ( $P=0.0001$ ).

**Conclusion:** According to our findings, both the presence and the duration of hyperglycemia are associated with an increased risk of ROP, although clinical trials need to determine if this association is causal.

**Keywords:** hyperglycemia, retinopathy of prematurity, Infant, Premature

#### IV access problems in NICU patients

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**Background:** Newborn babies are particularly at risk for extravasation, because of the fragility and small caliber of their peripheral veins. The minor complications are very common in NICU, but knowledge about major complications is more important.

**Methods (cases):** Here we report some cases with severe tissue damage and ischemia in NICU and review their management. Cases' selections were referred to intravenous catheter malposition or extravasation during NICU management.

**Findings:** Intravenous line mismanagement was associated with various complications, such as hemorrhage, thrombosis, infection and vascular perforation. The most of wounds had healed completely leaving a small size of contracture without functional abnormality in small skin necrosis. However, we had some catastrophe such as severe skin and muscle destruction, limb amputation and eventually death.

**Conclusion:** We conclude that intravenous catheterization could associate with some severe complications and these routes must be exactly monitored. We warrant clinical trials for the confirmation of the local management of extravasation injury.

**Key words:** newborn, NICU, intravenous catheter, complication

#### The effects of mother's level of education and occupation on newborn birth weight

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**Background:** Low birth weight < 2500 gram (LBW) is a major risk factor for neonatal morbidity and mortality. Several fetal, maternal or placental factors can influence intrauterine growth. Several maternal factors such as anthropometric parameters, hazardous health habits and socio-economic condition are suggested as risk factors for LBW. In this study we have evaluated the association of maternal factors including level of education and occupation with low birth weight.

**Methods:** In this case-control study mothers who delivered LBW infants were the case group, and those with normal birth weight (NBW) infants in the same day were the control group. According to the level of education, all mothers were divided into five groups as illiterate, primary, advance school, diploma and university; mother's occupational status was defined as housekeeper and worker in case and control groups. Information related to mother's level of education and occupation was compared between

two groups. Data analysis was done by SPSS software using Chi square test and independent T test and P value less than 0.05 was considered significant.

**Findings:** In the present study, 4000 live births records were reviewed in 2 referral hospitals (Mashhad-Iran) during 12 months (2010) and the prevalence of LBW was 5.8%. There were 450 NBW neonates (control group) which was compared with 234 LBW neonates (case group). Comparing educational level of mothers revealed no significant difference between case and control groups (P value:0.156). According to occupational status of mothers, Chi square test didn't show any significant difference between LBW and NBW neonates (p.value:0.910).

**Conclusion:** This study showed that mother's level of education and occupation didn't affect the birth weight. A larger size study by considering the hardness of job and duration of each shift is suggested. It should be remembered that the study was done on population with low socio-economic level that may associate with lower educational level too; so if the data was gathered from some private hospitals the results would be changed.

**Keywords:** low birth weight, maternal education, maternal occupation, newborn

#### New bronchopulmonary dysplasia

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With the introduction of mechanical ventilation to neonatal intensive care in the 1960s, the natural course of severe RDS in the premature infant was altered. At that time, mechanical ventilation brought about improved survival of premature infants who would have previously died; however, many survivors were left with the sequelae of chronic lung process in a group of surviving premature infants weighing >1500 g at birth, all of whom had received prolonged mechanical ventilation with high airway pressures and high inspired oxygen concentrations. This process was attributed to multiple injuries to the immature lung, and was characterized by a progression of its clinical and radiological course through four stages, which culminated in severe respiratory failure with hypoxemia and hypercapnea, often with cor pulmonale, and with chest X-ray finding of increased densities due to fibrosis and large areas of emphysema, juxtaposed against areas of collapse. Northway and colleagues, in 1967, gave a name to this chronic lung process: bronchopulmonary dysplasia. Forty years later the severe classic presentation of PBD originally described by Northway is infrequently seen. Instead, the clinical presentation is more often that of a considerably milder form of lung disease, which appears in much smaller and more immature infants than those in the original description. Like their predecessors, essentially all present-day premature infants developing chronic lung disease have required mechanical ventilation early in life. However, one of the most striking differences in clinical presentation is the small size of these infants. In addition, many of these infants, most of whom have benefited from antenatal steroids and/or postnatal surfactant, now present initially with only minimal or mild respiratory failure, and may require mechanical ventilation with low inspiratory pressures and low oxygen concentrations for mild RDS, pneumonia, apnea or poor respiratory effort. Unlike the original infants with BPD who required many days of mechanical ventilation with high oxygen, present-day

infants often have weaned to room air within the first day or days of life. In fact, they often experience a “honeymoon period” at that time, where they usually remain on mechanical ventilation, thought their need for supplement oxygen is minimal. It is only after a few days or weeks that these infants begin to show a progressive deterioration in their lung function, characterized by an increase in ventilator and oxygen requirement and signs of ongoing respiratory failure. This deterioration is often triggered by bacterial infection and/or the development of a symptomatic patent ducts arteriosus. By this time, these infants have developed a chronic lung process: the “new” BPD. Radiographic manifestations of this present-day BPD differ substantially from the X-ray picture described by Northway. Instead of evidences significant lung destruction resulting in fibrosis and emphysema, radiographic findings now may range from diffuse haziness to areas of hyperinflation, non-homogeneity of lung tissue and fine or coarse densities extending to the periphery. Changes in pathogenesis: The pathogenesis of BPD is clearly multifactorial including: RDS – prematurity- oxygen supplementation – positive pressure mechanical ventilation- Inflammation and infection –fluid administration- pulmonary edema- PDA nutritional deficiencies and early adrenal insufficiency. Prevention: Antenatal prevention: - Preventing preterm labor -acceleration of lung maturity - Preventing Antenatal oxidative stress

**Keywords:** bronchopulmonary, dysplasia, prematurity

### **Knowledge and attitudes of mothers of newborn infants born in hospital for jaundice on the Prophet, Kalaleh**

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**Background:** During the first week of life, jaundice occurs in approximately 60% of infants born at term and 80% of preterm infants. This study examines the awareness and attitudes about infant jaundice.

**Methods:** Mothers of 100 infants born in Hazrat Rasoul Akram Hospital, kalaleh included in this study which is a descriptive and analytical one. Participants were in the age group 16-47 years. Data collection tool was a questionnaire. Knowledge and attitudes of mothers was defined at 4 levels of awareness or attitude, and data were analyzed by statistical software.

**Findings:** The mean age was  $2 + - 1 / 23$  years, and the mothers were mostly rural housewives and 72% had primary education, 8% had high-risk pregnancies and 66% were in their first pregnancies. Knowledge of mothers about neonatal jaundice consisted: 10% very poor, 53% poor, 28% intermediate and 8% good. Awareness and attitudes related significantly with maternal education level, economic status, family history of jaundice in children and families. With regard to the average decrease in neonatal hospital stay after childbirth, Neonatal jaundice in most cases occurs when the baby is at home with family. Therefore, early diagnosis of jaundice is the responsibility of families, especially mothers.

**Conclusion:** Significant impact on the outcome of maternal awareness and early diagnosis, reduced morbidity statistics are sometimes deplorable condition. It is proposed to develop curriculum and conduct systematic and rigorous study in the country which is a Golden and valuable step towards the first level of prevention in order to raise

awareness and improve attitudes about mothers and babies with jaundice.

**Keywords:** jaundice, pregnancy, prevent

### **Study of the effect of zinc administration during pregnancy on neonatal growth**

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**Background:** Zinc requirement increases during pregnancy. In experimental animals zinc deficiency limits fetal growth but this is not approved in humans. The aim of this study is evaluation of the effect of zinc administration during pregnancy on neonatal growth.

**Methods:** This clinical trial study did on 200 pregnant women in Tehran Javaheri hospital during 2 years (2009-2010). Mothers divided into two groups of 100 persons. Iron and folic acid administered to one group. In addition to these two elements, 25 mg zinc per day administered to other group from 16-20 weeks of gestation until delivery time. Neonatal growth evaluated after birth. The data analyzed by SPSS and independent t test.

**Findings:** In control group mean weight was  $3212.7 \pm 380$ , mean height  $48.5 \pm 1.4$  and mean head circumference was  $35.3 \pm 1.3$ . In case group mean weight was  $3193.5 \pm 347$ , mean height  $48.5 \pm 1.9$  and mean head circumference was  $35.2 \pm 1.2$ . There is not significant correlation in weight, height and head circumference between two groups.

**Conclusion:** There is not significant correlation between mean weight, height and head circumference of neonates whose their mothers given zinc in addition to iron and folic acid. So routine administration of zinc supplementation does not help to improvement of neonatal growth. Its administration recommended in special situation that the possibility of zinc deficiency exists.

**Keywords:** zinc, pregnancy, neonatal growth

### **Evaluation of hand hygiene practice among NICU staff in Yazd, Iran**

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**Background:** Hands are easily contaminated during the process of care giving or from contact with environmental surfaces close to patients and the hands of healthcare workers are the most common source of pathogens transmission from patient to patient. Hands hygiene and washing of them is one of the most effective ways to prevent spread of germs and direct observation of hand hygiene practices on a regular basis and its quality promotion contributes to increasing rate of compliance. The purpose of this study was to evaluate hand washing and hand hygiene practices in NICU staff.

**Methods:** In a descriptive- analytic study, method and duration of hand washing and kind of antiseptic agents that all NICU staff in Yazd regularly used evaluated by direct close structured observation by trained external observer.

**Findings:** Mean age of NICU nurses was  $27.52 \pm 5.6$  years. Overall 64.2% of them washed their hands before entering the ward and mean of the duration of hand washing was  $55.71 \pm 43.25$  seconds. Only 26 % NICU staff washed their hands before and after touching of patients and direct

contact with them. Plain soap was the most common antiseptic agents that they used for hand washing (in 70.8%). No statistically significant differences were seen between the duration and kind of antiseptic agents and age, work shift or work experience of staff.

**Conclusion:** Based on the result of this study, there was suboptimal adherence and great individual variation in hand hygiene of NICU staff. Emphasis on standard guidelines, reeducation and improvement in hand hygiene practice should be done for reduction of healthcare-associated infections.

**Keywords:** hand washing, compliance, NICU staff

### Neonatal mortality in neonatal intensive care unit of Assalian Hospital in 2009

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**Background:** Neonatal mortality rate is one of the important hygienic and cultural indices of any community. Neonatal mortality rate is higher in Iran in comparison with developed countries.

**Methods:** In this descriptive study, all of the neonatal death in the newborns who had been admitted to neonatal intensive care unit of assalian hospital in 2009 studied. In each neonatal death, information was collected from profiles, and was written in questionnaires. Data analyzed with spss software. Neonatal mortality rate according to each of the neonatal features studied.

**Findings:** Out of 235 admitted neonate, 50(21/3%) died(64% males and 36%females). 82% were premature, 16% term and 2% post term. 70% resulted of normal vaginal delivery. In 50%, Apgar score in 5 minutes was less than 5. 94% were single and 4% were twin. Maternal age was less than 20 y/o in 18%, 20-35y/o in 68% and more than 35y/o in 14%. Birth weight in 46% of dead neonates was 1000-1500 gram. The cause of admission in 84%was prematurity and respiratory syndrome. Age of death was less than one day in 62%, less than one week in 34% and more than one week in 4%.

**Conclusion:** Most of the death cause in neonatal intensive care unit was prematurity.

**Keywords:** neonatal intensive care unit, neonatal mortality rate

### Congenital anomaly of infants conceived by Assisted Reproductive Techniques

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**Background:** Many studies show that congenital defects in infants conceived by assisted reproductive techniques (ART) are more than infants of normal conception (NC). The aim of this study is determination of the frequency of congenital anomalies in ART infants of Royan institute and to compare the frequency of congenital anomalies between two methods of ART techniques.

**Methods:** In a cross-sectional descriptive study , 400 ART infants of Royan institute who are residence in Tehran selected by non- random consecutive method and examined two times ( until 9 months of age) by a pediatrician. Their congenital anomalies describe by each system or organ and kind of ART methods. Data were analyzed by SPSS version 16 and using Fisher's exact test.

**Findings:** Frequency of different organ involvement in two times examination was: 40 (10%) skin, 25 (6.2%) urogenital system, 21 (5.2%) gastrointestinal tract, 13 (3.2%) visual system, and 8 (2%) cardiovascular system. The major congenital defects of IVF ( In Vitro Fertilization) and ICSI (Intracytoplasmic Sperm Injection) infants were hypospadiasis , inguinal hernia , patent ductus arteriosus + ventricular septal defect , developmental dysplasia of hip, lacrimal duct stenosis in first year of life , hydronephrosis and urinary reflux more than grade III , undescending testis, ureteropelvic junction stenosis and torticoli.

**Conclusion:** Two- third of ART infants had no defect. 7% of IVF and ICSI infants had one of the major congenital anomalies which were higher than NC infants (2-3%). There was no difference in ICSI and IVF infants group.

**Keywords:** infants, Assisted Reproductive Techniques, congenital anomalies, In Vitro Fertilization (IVF), Intra Cytoplasmic Sperm Injection (ICSI).

### Fetal laceration injury during cesarean section

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**Background:** The purpose of this study was to investigate the incidence, type, location, and risk factors of accidental fetal lacerations during cesarean delivery.

**Methods:** Total number of deliveries, cesarean deliveries, and neonatal records for documented accidental fetal lacerations were reviewed retrospectively in four university hospitals. The gestational age, the presenting part of the fetus, the type of incision, the gestationa age at delivery, maternal age and parity were recorded. Cesarean deliveries were divided into elective and emergency procedures. Fetal lacerations were divided according to the location and the need for surgical intervention.

**Findings:** Of 19217 deliveries, 8840 women were delivered by cesarean birth (46%). Neonatal records documented 87 accidental fetal lacerations. Of these accidental lacerations, 16 cases needed surgical repair and 62 cases recovered by dressing .Head and neck was the most common site of laceration (64/1%) .The overall rate of accidental fetal laceration per caesarean delivery was 0.88%; The rate of emergency cesarean was 45 (56.69%) and of elective procedures was 33(42/4%). The risk for fetal accidental laceration was higher in fetuses who underwent emergency cesarean birth and lower for elective cesarean births (P<.001).

**Conclusion:** Fetal accidental laceration may occur during cesarean delivery; the incidence is significantly higher during emergency cesarean delivery compared with elective procedures. The patient should be counseled about the occurrence of fetal laceration during cesarean delivery to avoid litigation.

**Keywords:** fetal laceration, caesarean, birth trauma

## The study of neonatal hearing screening program in Milad hospital, Kashan- Iran from 2009 to 2011

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**Background:** The impact of permanent hearing impairment on a child and his or her family can be substantial and long term. It has been recognized that early detection and management of congenital hearing loss will help to lessen the impact of the condition on the child's social, emotional, intellectual and linguistic development. In this study, tried to use screening results in early detection and treatment of significant hearing impairment.

**Methods:** Neonatal hearing screening was performed in Mild Hospital, Kashan-Iran from June 2009 to June 2011. They were screened at birth by using transient evoked otoacoustic emissions (TEOAEs) and then if they need ABR test. All newborns were tested under standard conditions before discharge from the hospital. According to the screening results, full audiological evaluations were performed when necessary. The screening method was the TEOAEs Test. There were three phase in this study: initial screening, re-screening and diagnostic tests with ABR/OAEs. High risk neonates, especially those hospitalized in NICU, were scheduled for follow-up even if they were normal in the initial screening.

**Findings:** The result from 2042 live newborns indicated that 95.1% of newborns proved normal in the primary screening in the maternity ward, and 4.9% were abnormal. Out of 99 infants scheduled for follow-up study 79 neonates returned then 7 neonates referred to diagnostic audiological test (ABR) and two of seven cases were managed to rehabilitation plan.

**Conclusion:** Successful newborn hearing screening, diagnosis and intervention programs representing well integrated care systems are rapidly being developed in Iran. This study has shown that two-stage TEOAE & ABR hearing screening can be successfully implemented on a large scale in hospital to achieve the high quality standard of screening programs. In according to results, recommendation of two-stage universal newborn screening protocols, amplification before age 6 months and regular attendance of infants at aural habilitation sessions are necessary.

**Keywords:** neonate, hearing loss, hearing screening, TEOAE, ABR

## Comparison of low and normal birth weight newborn according to their mothers' status during the year 2005-2009 in the district of Firuzkuh

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**Background:** Low Birth Weight (LBW< 2500gr) newborn in contrast to Normal Birth Weight (NBW≥2500gr) generally would have a highest morbidity and mortality. Apart of constitutional causes of LBW, maternal

demographic, socio-economic, and cultural status may have an important impact on the LBW incidences. So, study and comparison of two groups mothers with Normal and Low Birth Weight baby and probably with different social condition , may obtains some useful data for improvement and proceeding of ongoing and future programs of the reproductive health.

**Methods:** Annually, the numbers of live born baby isn't too much because of the low settled population in the district of Firuzkuh, so we included all of the 57 live and LBW babies who were born during the year of 2005 till to 2009 as cases, and 228 NBW live born babies as control. Studied babies and their mothers had family records in the rural and urban health centers of Firuzkuh Health and Treatment Network. All of the data for completing of the questionnaires derived and then encoded from the family health records, retrospectively. Reliability of the study attained by the pretest of 30 questionnaires and getting of a valid Cronbach's Alpha (0.81).

**Findings:** The mean of LBW percentage during the year of 2005-2009 in Firuzkuh was 10. Following variables dependent to the mothers and family had a significant relation to the weight of baby at birth: fathers' occupation (P=0.001), maternal weight gaining at pregnancy(P=0.04), the place of family living (city or village)(P=0.004), quantity of prenatal care(P=0.001), baby sex(P=0.003), maternal first time referring for prenatal care (P=0.003). The rest of studied variables such as: Mother s' age at delivery, occupation, education level, Body Mass Index(BMI), and diabetes before or during pregnancy had no significant relation to the weight of baby at birth.

**Conclusion:** Main findings of Our study showed intensifying of quantity and improving of quality of maternal prenatal care may decrease the prevalence of LBW and its unpleasant outcomes.

**Keywords:** newborn, normal birth weight, low birth weight, socio-economic status, occupation

## Prediction of the neonatal asphyxia by peripheral nucleated red blood cell count

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**Background:** Asphyxia is one of the most important causes of perinatal morbidity and mortality and a major cause for some neonatal complications, such as cerebral palsy. Early diagnosis of asphyxia and starting supportive treatment is important for decreasing its complications. Some recent studies have reported relationship between nucleated red blood cells (nRBC) count and fetal distress and asphyxia, and its duration and intensity. Most of these studies evaluate umbilical cord blood sampling. The purpose of this study was to evaluate this possible relationship between asphyxia and peripheral NRBC count at birth.

**Methods:** In a case-control study, we enrolled 80 neonates who admitted at 22 Bahman hospital, Mashhad, Iran, from January 2005 to January 2010. They were divided into two groups. The control group composed of 40 non-asphyxiated neonates, and the case group consisted of 40 neonates who suffered from asphyxia. The nRBC in peripheral blood were counted in two groups and data were analyzed.

**Findings:** The mean nRBC count in the case group was 3878.2 4552.3 and in control group was 525.5 924

( $p=0.0001$ ). The number of nRBCs in the neonates with asphyxia was higher than control group. We also observed a statistically significant P-value in Asphyxiated group for male sex, first day of life, high birth weight, lower APGAR score, normal vaginal delivery and meconial amniotic fluid in comparison with non-Asphyxiated group. **Conclusion:** nRBC count in Asphyxiated group was significantly elevated; hence it could be used as a marker for diagnosis of neonatal asphyxia. Probably, by using this marker, as an early parameter for diagnosis, we can decrease the asphyxial morbidity and mortality.

**Keywords:** nucleated red blood cells, neonates, asphyxia

### Relation between cord blood Cardiac Troponin level and passage tick meconium in amniotic fluid

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**Background:** one of the most important neonatal morbidity and morbidity during labor is perinatal asphyxia. Asphyxia is associated with multiple organ failure. Hypoxia causes release troponin from cardiac muscles. One of the criteria of fetal distress is passage tick meconium. Elevated levels of Cardiac troponin T in cord blood may be associated with intrauterine hypoxia due to passage tick meconium Aims—to establish Relations between cardiac troponin T levels and passage tick meconium in amniotic fluid.

**Methods:** Cord blood samples were collected from 80 neonates and analyzed. Immediately after birth of newborns samples were taken from the umbilical cord remnant for Troponin T over a ten month period, on Shahid Akbarabadi Women's Hospital.

**Findings:** A total of 80 samples were collected, 23 samples from infants with fetal distress who passed tick meconium in amniotic fluid and 46 samples from infants without fetal distress were used to control group. The gestational age of these infants ranged from 38 to 42 weeks and birth weight ranged from 2.5 to 4 kg. Neonates with distress and tick meconium passage had significantly higher cord cardiac troponin T levels than control group 43,21 v 32,96.

**Conclusion:** Infants with fetal distress who passed tick meconium in amniotic fluid had significantly higher cord cardiac troponin T levels ( $p$  value =0/001).

**Keywords:** cord blood, cardiac troponin T, tick meconium

### GBS colonization in pregnant women and their newborns in Gorgan- North of Iran

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**Background:** GBS is one of the common causes of neonatal sepsis and meningitis according to literature. In other hand, bacterial and trichomonal vaginosis and

generally genitalia colonization in pregnant women result in probable preterm rupture of membranes and chorioamnionitis. GBS infection increases morbidity and mortality in neonates and also decreases successfulness of perinatal care. This study was undertaken to determine the prevalence of pregnant women and their neonates' colonization by GBS and gram negative bacilli.

**Methods:** This descriptive study was performed in 250 pregnant women who were referred to our center with labor pain from 2007-2008. Demographic data was recorded and from each mother two low vaginal swabs were taken prior to first pelvic examination. One rectal swab and urine analysis and culture were also collected from each mother. A total of three samples were collected from each newborn immediately after birth from external ear, nostrils and umbilical base. Our criteria for colonization were positive culture.

**Findings:** 51.6% of mothers were colonized. 4.4% of newborns from colonized mothers were also colonized. 50.4% of total mothers had bacterial colonization with GBS and 1.6% was colonized by fungi. Gram negative and gram positive bacilli were present in 24 and 11 percent of cases. Premature rupture of membranes occurred in 28 mothers that 67.9% of them had bacterial colonization.

**Conclusion:** This study indicated that bacterial vaginosis prevalence was higher, but GBS colonization was lower than similar studies. Also we could not find a significant relationship between maternal bacterial colonization and newborn colonization.

**Keywords:** GBS colonization, pregnant women, neonatal sepsis

### Nephropathy of Prematurity

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The association of low glomerular number with hypertension and renal insufficiency was described in the 1930s. Hypertensive patients had fewer glomeruli and larger mean glomerular volumes than nonhypertensive people. In the other hand, of greatest significance, total nephron number varies at least 13-fold, and several genes and environmental factors that regulate human nephron endowment have been identified. Glomerular volume also varies widely, both between and within kidneys, and increased heterogeneity of glomerular volume within kidneys is associated with risk factors for kidney disease, including birth weight, age, race, body size and hypertension. Low birth weight due to premature birth or to intrauterine growth retardation adversely affects normal renal development. In the period immediately after birth, the short-term renal-related consequences of low birth weight are an increased risk of acute renal failure as well as transient imbalance of fluid and electrolyte homeostasis. Epidemiological studies show that low birth weight adults are at risk of developing chronic renal disease. Interference with normal kidney development, as seen in low birth weight babies, results in a lower than normal number of nephrons. Premature infants have impaired lomerulogenesis which is more pronounced in those with acute kidney injury. the extra-uterine environment does not allow for proper neo-glomerulogenesis. Neonates with AKI are at risk of developing chronic kidney disease and hypertension. Altered programming resulting in hypertension can begin in utero, but can also occur in postnatal life through

modulation of nutrition composition, growth trajectories, and premature birth. Nephron loss that occurs in response to fetal insult is likely due to alterations in the expression of genes and growth factors critical for proper nephrogenesis such as matrix metalloproteinase MMP-2 and MMP-9, with a critical role implicated for the renin– angiotensin system (RAS), glucocorticoids, inducible enzyme cyclooxygenase-2, and alterations in genes key to fetal renal apoptosis.

**Key words:** glomerular number, chronic renal disease, impaired glomerulogenesis, premature birth

### **Single day phototherapy in treatment of neonatal jaundice**

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**Background:** Neonatal Jaundice is a common problem in the first week of life. Most of the newborns have a mild physiological jaundice in this period of life which clears up about two weeks time without any problem. However those with high serum bilirubin of more than 14 mg need careful follow- up, but some of the parents due to negligence do not take it seriously and some of these newborns develop CNS complication due to kernicterus. The cause of negligence by the parents is mostly due to the poverty of knowledge, education, culture, customs and monitory problems. To reduce such problems we have tried a single day photo-therapy with blue light to prevent these complications which gives about 95% cure rate.

**Keywords:** single day phototherapy, blue light

## Nephrology

### Comparative study of factors related to urinary tract infection in children

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**Background:** Urinary tract infection (UTI), is the second most common infection in children. If it is not properly diagnosed and treated, it can lead to irreparable results such as hypertension and diminished renal function. In this study, we make a comparison of some factors in urinary tract infection and non urinary tract infection in children.

**Methods:** It was a cross-sectional study. The dependent variable was UTI and the independent variables were sex, circumcision, and breast feeding. 228 studied children were divided into two equal groups that a group of positive urine culture and the second group had negative urine culture. Data collection devices used was answer sheets, check list and examination. Method of data analysis was descriptive and analytical data analysis like the t-test and Chi square was used. The software used was SPSS.

**Findings:** The above study showed that the prevalence of urinary tract infection in girls was higher (77.2%). Considering age limit, more prevalence belongs to age group of 0-1 year (38.6%). In this study, 79.8% of cases from non-infected were being fed by breast milk. There was significant relation between breast feeding and UTI. (P=0.03%) Uncircumcised boys compared with circumcised boys and a significant relationship between circumcision and UTI was observed (P=0.001).

**Conclusion:** In this study, there was correlation between genders, breast feeding and circumcision with UTI, but significant relationship between UTI and age of circumcision did not exist.

**Keywords:** urinary tract infection, children, risk factors

### New markers for GFR assessment in children

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Assessment of glomerular filtration rate is the most important method for renal function evaluation. The reference method to determine glomerular filtration rate (GFR) in children is the inulin clearance. The pitfalls include difficulty in obtaining inulin, and need to continuous infiltration of inulin to achieve a constant plasma level. These problems have led to the development of other methods to estimate GFR. Creatinine is by far the most commonly used biochemical marker of renal function, but the use of serum creatinine has some problems. The serum creatinine concentrations depends on sex, age, and muscle mass of body. The routine method for serum creatinine measurement is jeffe method. This method is affected by hemoglobin, bilirubin and ketone. The limitations of estimates of glomerular filtration rate (GFR) based only on serum creatinine measurements have led to a series of investigations for assessment of new GFR markers such as cystatin C, Beta 2 microglobulin NGAL and beta trace protein. Beta-trace protein (BTP) is a low-molecular-weight glycoprotein and freely is filtered through the glomerular basement membrane with minimal non-renal

elimination. This protein has been introduced for the measurement of kidney function in the creatinine-blind range. Beta 2-microglobulin has been advocated as a GFR marker, but its serum concentration can increase as an acute-phase reactant or as a tumor marker in lymphoproliferative disorders. NGAL has a low molecular weight, so it is freely filtrated and excreted in urine. Some authors suggest the use of NGAL as a renal function marker, but it has been shown that this marker increases during inflammation. Cystatin C (Cys C) is a 13 kDa cysteine protease that is produced by all nucleated cells. The gene is of the house-keeping type, which is compatible with a stable production rate even in the presence of inflammatory stimuli. It appears that serum Cys C levels generally show diagnostic superiority or equivalence in comparison with serum creatinine. Cys C proves to be a superior marker especially in the blind range of creatinine. Unlike creatinine, serum Cys C reflects renal function in children independent of age, gender, height and body composition. In comparison with the Schwartz formula, Cys C-based GFR estimates show significantly less bias and serve as a better estimate for GFR in children. In this study we measured serum cystatin C, beta trace protein and creatinine levels concurrently in 100 children without known kidney disease. We then compared these markers and their based GFR. The aim was to find a GFR formula with high accuracy. The results of this study will be presented in congress.

**Keywords:**renal function, beta trace protein, cystatin C

### Pediatric urolithiasis: an experience of a single center

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**Background:** The aim of this study was to evaluate the clinical features, metabolic and anatomic risk factors in children with urolithiasis.

**Methods:** Between 2004 and 2009, 84 children (35 girls, 49 boys) followed in our department because of urolithiasis and they were enrolled to participate in our study. Clinical presentation, urinary tract infection, stone localization, positive family history, stone composition, presence of anatomic abnormalities and urinary metabolic risk factors were evaluated retrospectively. Evaluation included serum biochemistry, measurement of daily excretion of urinary calcium, uric acid, oxalate, citrate, and magnesium (in older children); and measurement of calcium, uric acid, oxalate, and creatinine in random urine samples in nontoilet-trained patients.

**Findings:** We investigated 84 patients (35 females and 49 males) with urolithiasis between 6 months and 16 years of age (mean age  $5.25 \pm 3.61$  years). The stones' diameter was 3.2-31 mm (mean  $7.31 \pm 4.64$ ). In 90.6% of cases the stone was located only in kidneys and in 2.4% only in bladder. The most common causes of presentation were urinary tract infection (UTI), restlessness and abdominal pain. Positive family history was detected in 27.3%, UTI in 23.8%, anatomic abnormality in 10.7% of patients. Metabolic evaluation, which was carried out in 78 patients, revealed that 104 (52.6%) of them had a metabolic risk factor including normocalcemic hypercalciuria (21.7%),

Hyperuricosuria (11.5%), Cystinuria (3.8%), and Hyperoxaluria (5.1%).

**Conclusion:** We think that urolithiasis remains a serious problem in children in our country. Family history of urolithiasis, urologic abnormalities (especially under the age of 5 years), metabolic disorders and urinary tract infections tend to indicate childhood urolithiasis.

**Keywords:** urolithiasis, child, metabolic evaluation, urologic abnormalities

### Serum and urine fibronectin concentration in children with vesicoureteral reflux

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**Background:** Fibronectin (FN) is a 440-kDa adhesion glycoprotein commonly found on the cell surface in the extracellular matrix and in biological fluids, mainly in serum and urine. Serum FN is synthesized in the liver, whereas urinary FN originates from local production or blood. Research studies conducted on animals and humans with various renal diseases have shown increased expression of FN in renal interstitial tissue and in glomeruli, especially in membranous, diabetic and reflux nephropathies, and in other glomerulopathies. This study aim was to assess serum and urine fibronectin (FN) levels in children with vesicoureteral reflux (VUR) depending on reflux grade and kidney damage on renal scan.

**Methods:** We assessed 41 VUR children, mean age 4.3 (range 0.4–11) years. The female patients consisted 78% of all patients. Patients were divided into three groups: low grade vesicoureteral reflux (I, II): 26.8%, Moderate grade vesicoureteral reflux (III): 14.6% and Severe grade vesicoureteral reflux: 7.3%. Serum and urine fibronectin were measured in all patients concurrently.

**Findings:** We showed that the serum and urine fibronectin concentration were not different between patients with low, moderate and high grade vesicoureteral reflux. We also found that urine fibronectin concentration is not different between patients with or without renal scar in DMSA scan.

**Conclusion:** Our results are not similar to a study performed in 2009. In this study the investigators showed a higher urine and serum fibronectin level in children with high grade reflux with kidney damage. Thus there is a need to perform more studies to determine the role of fibronectin in vesicoureteral reflux.

**Key Words:** reflux, fibronectin

### The evaluation of the relationship between the severity and etiology of hydronephrosis and the urinary/serum NGAL in infants with congenital hydronephrosis

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**Background:** Hydronephrosis is the most common congenital anomaly that is detected by prenatal ultrasonography comprising 50% of congenital malformations. Rapid diagnosis and initiation of the treatment are vital to preserve function and/or to slow down renal injury. The aim of our study was to determine whether NGAL may be useful non-invasive biomarkers in children with congenital hydronephrosis (HN) as a prognostic factor.

**Methods:** In this prospective study, 48 infants under 6 months with congenital hydronephrosis who referred to Ali-Asghar hospital, Labafi-nejad hospital and Rasool-Akram hospital "Oct.2009 – Jul. 2011" were evaluated. Ultrasound was done for assessment the kidney size, paranchymal thickness, echogenicity of parenchyma, degree of hydronephrosis, anteroposterior diameter of pelvis and hydroureter. All of the children had normal renal function and inclusion criteria as well: meaning that for the past three months, infants had to lack UTI. NGAL Rapid Elisa Kit (kit 037) was used to measure uNGAL and sNGAL. Data were analyzed with SPSS for finding correlation between APD & serum or urine NGAL.

**Findings:** The mean age of infants were 4 months (62.5%). 30 patients were boys and 18 (37.5%) were girls. 32 (66.7%) patients had unilateral and 16 (33.3%) patients had bilateral hydronephrosis. Etiology of hydronephrosis was 33.3% VUR, 20.8% UPJO and 6.2% neurogenic bladder. It is notable that 18 patients (45.8%) had transient hydronephrosis. Mean of serum & urine NGAL was 48.08 ng/ml(1.2-380). uNGAL levels in 22 patients were (45.8 %) greater than normal level and sNGAL levels in 3 patient were greater than normal level. Although increase in urine NGAL was seen with higher APD, but it wasn't significant ( $p < 0.05$ ).

**Conclusion:** Based on these results, though uNGAL level in 22 patients (45.8%) was greater than normal level, statistically we didn't find any significant relation ( $p < 0.05$ ) between serum and urine NGAL with APD. More studies are necessary to be done in more cases.

\*NGAL: Neutrophil gelatinase associated lipocalin

**Keywords:** NGAL\*, APD, HN, UPJO, CRF

### Evaluation of the effect of the time and temperature in outcome of urine cultures in children with 2 way: bag and midstream

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**Background:** UTI is one of the common pediatric infections. Diagnosis of UTI is based on urine culture and culture result is associated quite with the urine sampling. So urine sampling is very important. There are four methods for obtaining urine sample that include taking midstream urine, using urine bag, catheter using and supra pubic aspiration. False positive cases are high in urine bag method, so the negative results are more valuable to rule out urinary tract infection. Mid stream method is used in children that can control their urination. Positive urine culture result is more likely over time.

**Methods:** In this study, 240 patients selected by systematic random sampling method and their urine samples collected by urine bag (120 patients) or mid stream method(120 patients) by their parents due to age were sent to laboratory. Each group divided into two subgroups with 60 patients and then every subgroup of urine samples put in the refrigerator (4°C) or in vitro. Then, for each group at the first (control), urine cultures and urinalysis were routinely performed then urine culture results samples studied 2 and 4 hours later.

**Findings:** In urine samples collected by urine bag and kept in the refrigerator, the rate of positive urine cultures at time

zero, 2 hours later and 4 hours later were 15 cases (25%), 15 cases (25%) and 15 patients (25 %) respectively. And in samples maintained in vitro, the rate of positive urine cultures at time zero, 2 hours later and 4 hours later were 16 (26/7%), 19 cases (31/7%) and 25 cases (41/7%), respectively. In urine samples collected by mid stream method and kept in the refrigerator, the rate of positive urine cultures at time zero, 2 hours later and 4 hours later were 3 cases (5%), 4 cases (6/7%) and 4 patients (6/7 %), respectively. And in samples maintained in vitro, the rate of positive urine cultures at time zero, 2 hours later and 4 hours later were 6 (10%), 6 cases (10%) and 8 cases (13/3%), respectively.

**Conclusion:** Results from this study shows that urine culture more likely to be positive over time. However, if samples collected by urine bag or mid stream method are kept in refrigerator, this increase is not significant. If the samples are kept in the outside environment, the rate of positive urine cultures will increase significantly.

**Keywords:** urine bag, mid stream, urine culture

### Increase in the carotid intima media thickness in children & young adults with renal transplantation

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**Background:** Cardiovascular disease is the main cause of morbidity and mortality among children and young adults after renal transplantation. There is a close relation between carotid intima media thickness (CIMT) and cardiovascular disease. The main aim of this study was to investigate CIMT and its relation to risk factors of early arteriopathy in renal transplanted patients.

**Methods:** Sixty-six renal transplanted patients (30 females, 36 males) with stable graft function and 66 age and sex matched healthy controls were enrolled in this study. The measurement of CIMT was performed with high resolution B mode ultrasonography in multiple projections. The results were correlated with clinical and paraclinical parameters. Statistical analysis was performed by SPSS-15 and T-test and multiple regressions.

**Findings:** The mean age of patients was 18.3±4.5 years. The mean time for CKD to transplantation was 40±26 months. The average GFR at the time of study was 81±28.7 ml/min/ 1.73 m<sup>2</sup>. Compared with control subjects, transplant patients had significantly CIMT (P= 0.003). Among risk factors, positive correlation was found between CIMT and age, sex (male compared female) and cumulative dose of calcitriol (P= 0.001, P= 0.001, P= 0.26 respectively). Significant positive correlation was not found between CIMT and BMI, blood P product, cumulative pressure, GFR, duration of dialysis, duration of CKD, Ca dose of P-binder, lipid profile, uric acid, cyclosporine level and rejection episodes.

**Conclusion:** Subclinical atherosclerosis is present in young transplant recipients. Non invasive monitoring of CIMT in renal transplanted patients for detection of early vascular lesions would be of outmost value in preventing cardiovascular disease. Regarding our study as important role of calcitriol and positive correlation with CIMT, it seems fine control of Ca, Ph homeostasis, and also dose of calcium based phosphate binder and calcitriol is very important.

**Keywords:** intima media thickness, transplantation, children, doppler sonography

### Evaluation of urinary level of interleukin 8 in differentiation upper and lower acute urinary tract infection among children aged one month to 14 years attending in Abuzar Hospital in 1389.

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**Background:** Urinary tract infection (UTI) is a common bacterial infection in childhood and differentiation of pyelonephritis from cystitis is important, so we decided to assess the urinary level of interleukin 8(IL8) in children with acute UTI and revealed its role in the differentiation of upper from lower urinary tract infection.

**Methods:** We evaluated children aged 1 month to 14 years old with signs and symptoms of UTI and positive urine analysis and urine culture, then according to DMSA scan results, patients were divided into two groups: pyelonephritis and cystitis. Random urine specimens collected before and 48 hr after antibiotic therapy and IL8 concentrations measured with Enzyme Linked Immuno Sorbent Assay (ELISA) method.

**Findings:** 86 children with acute UTI were evaluated that consisted of 16 boys (18.6%) and 70 girls (81.4%) that 46 patients had pyelonephritis and 40 patients had cystitis. pretreatment IL8/Cr mean in pyelonephritis group was 20.3 (SD=25.7) and 48 h after treatment was 10 (SD= 20.9), pretreatment IL8/Cr in cystitis group was 6 (SD=7.1) and 48 hr after treatment was 2.7(SD=4.6). There was correlation of urine IL8/Cr with pyelonephritis or cystitis at the time of admission (p<.0001). Urinary IL8/Cr equal to 7 was an optimal point to establish presumptive diagnosis of pyelonephritis obtained by ROC analysis.

**Conclusion:** IL8 in upper UTI is significantly higher than lower UTI and IL8 is a good marker in differentiation upper from lower urinary tract infection.

**Keywords:** IL8, upper and lower urinary tract infection, children

### Nephropathic cystinosis: review of 10 cases

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**Background:** Cystinosis shows itself by lots of renal and extra renal manifestations. In this case series we review presentations of 10 children diagnosed during 10 years.

**Methods:** Information about 10 children diagnosed as cystinosis during 10 years collected. They followed by physical examination and laboratory test and these results evaluated and expressed as incidence.

**Findings:** Cystinosis is rare in our area (1/175000). The mean age of its diagnosis was 24 months. They reach to end stage renal failure at mean age of 95 months. It can be diagnosed as early as 9th months by corneal examination. Hypercalciuria presents in half, nephrocalcinosis in lesser number, but urolithiasis has not happened .Subclinical hypothyroidism detected in 5th years and frank hypothyroidism occur simultaneously to end stage renal failure in all.

**Conclusion:** Cystinosis can be diagnosed early by ophthalmoscopy. Subclinical hypothyroidism and hypercalciuria are common in cystinosis may be due to distal renal tubular acidosis beside to proximal tubular acidosis.

**Keywords:** renal, cystinosis, hypercalciuria, hypothyroidism

### **Biochemical risk factors for stone formation in healthy school children in Qom**

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**Background:** Prevalence of urolithiasis in childhood is increasing. The wide geographic variation in the incidence of lithiasis in childhood is related to climatic, dietary, and socioeconomic factors. Many children with stone disease have a metabolic abnormality. In the Southeast of Asia, urinary calculi are endemic and are related to dietary factors.

The main aim of this study was to determine the prevalence of renal stone, urine metabolic abnormality, control of BP and demographic character in elementary school children of Qom.

**Methods:** A cross sectional study was performed on 110 primary school children (56 girls and 54 boys) aged 7 to 11

years. Demographic data such as age, height and weight were gathered, and systolic and diastolic blood pressure (BP), Urine analysis and culture, urinary levels of Calcium, Creatinine, Phosphorus, Magnesium, Sodium, Potassium, Uric acid, Cystine, Citrate, Oxalate, Protein and Sonographic findings were evaluated.

**Findings:** The mean ( $\pm$ SD) of age was  $8.85\pm 1.51$  years. Only one child had renal stone (1%), but the prevalence of abnormal renal sonography was 7%. The most prevalent urine metabolic abnormalities were hypercalciuria (23%) and hypocitraturia (100%). 11.2% of children had positive urine culture that all were females. The prevalence of high blood pressure was 7.1% for girls and 11.1% for boys.

**Conclusion:** The prevalence of renal stone in children in this study was 1%, which means the accurate judgment about the prevalence of renal stone in Qom city needs the more comprehensive studies. Similar to other studies in Iran, this study showed that the prevalence of hypercalciuria is significantly higher comparing to other countries and it may be associated with excessive intake of sodium.

**Keywords:** urolithiasis, hypocitraturia, hypercalciuria, children

## Neurology & Psychiatry

### Febrile status epilepticus

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Febrile status epilepticus (FSE) is a form of reactive SE defined as a seizure that lasts for  $\geq 30$  minutes or is repeated frequently so as consciousness would not be regained between seizures and is the most common emergency of pediatric neurology. FSE occurs in 5% of febrile seizures and FSE children are more likely to have a family history of epilepsy, higher prevalence of baseline neurologic disease, a personal history of epilepsy and bacterial meningitis. FSE patients should be treated as others with SE. Fever should be lowered and meningitis must be considered as a diagnostic possibility in FSE children. Assessment of respiratory and circulatory status, maintenance of the adequate airway, oxygen therapy, cardiac & BP monitoring and pulse oximetry and establishment of IV line and obtaining blood samples (CBC, glucose, Ca, P, Mg, Cr, ABG, LFT, Na, K) should be done. Treatment with oral or intramuscular medication may be considered in partial seizures or brief generalized motor seizures which have stopped before the child arrives in the emergency department, or the child is conscious despite multiple seizures. If IV access is delayed or impossible, drugs can be given by alternative routes (intraosseous, IM, rectal or intranasal). Drugs that should be used in treatment of SE include: 1. First line: Benzodiazepines 2. Second line: Phenytoin and fosphenytoin 3. Third line: Phenobarbital. Intravenous lidocaine (1 - 2 mg/kg, once or twice) is one of the second-line drugs in SE treatment with favorable properties of prompt responses, less alteration of consciousness and respiratory depression. Intravenous valproic acid (20-40 mg/kg) can be used as a second or third-line treatment. Refractory seizures are defined as ongoing seizures despite the use of two first-line drugs (benzodiazepine plus either phenytoin or phenobarbital) or those continue for > 60-90 minutes, should be admitted in ICU and be treated for cerebral edema. In children who are hemodynamically stable, pentobarbital anesthesia is used. In patients who are hemodynamically unstable, midazolam may be better tolerated.

**Keywords:** febrile seizure, Status epilepticus, Febrile status epilepticus

### Acute generalized weakness in northern children of Iran

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**Background:** Diseases that cause acute flaccid paralysis often progress rapidly, so may cause life threatening complications, therefore their diagnosis and cure are important. This study was carried out to investigate prevalence and causes of acute generalized weakness in children referred to Amirkola children's hospital.

**Methods:** In this case series, cross-sectional study, epidemiological and clinical features of 15 cases with acute generalized weakness between April 2005 and September 2010 were collected. The setting of the study was Amirkola children's hospital, in Babol, Mazandaran. Data collected included age/gender, preceding events/motor and sensory deficit.

**Findings:** The mean age $\pm$ SD of cases was 4.7 $\pm$ 3.5 years. The male/female ratio was 2. All of the cases were 15, that in 12 cases Guillain-Barre syndrome, in 2 cases myositis and in 1 case periodic hyperkalemic paralysis were present.

**Conclusion:** Guillain-Barre syndrome has the highest prevalence in this region.

**Keywords:** weakness, paralysis, acute disease, Guillain-Barre syndrome

### Validation and cross-cultural adaptation of the ages and stages questionnaire

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**Background:** The present research was conducted with the aim of providing experts with the normalized and validated Persian version of the Ages and Stages Questionnaire, a developmental screening test that takes the least amount of time and can thus be easily implementable due to its self-report nature. This screening tool encompasses the motor (gross and fine), communication, problem-solving and personal-social developmental domains for children 4 to 60 months of age, in 19 different age groups.

**Methods:** Translation and back-translation, content validity determination, cultural and lingual modifications, pilot study on 100 parents and inter-rater reliability determinations were performed respectively before the test was carried out on a national sample. Next, with permission of the Ministry of Health, ninety physicians from 41 selected cities, who were employed at medical science universities, were invited to Tehran in groups, and trained theoretically and practically about the ASQ testing and scoring and also about their role in the supervision and implementation of the tool. Finally, the ASQ was implemented on a population of 10522 Iranian children in different cities from all over the country.

**Findings:** The reliability and validity of the screening tool were determined and showed satisfactory results. In addition, mean scores for Iranian children in different age groups and in terms of different developmental domains were identified. Comparing the mean developmental scores of Iranian children with those of children in a number of other countries, it appeared that the developmental status of Iranian children tends to be higher in the communication, problem-solving and personal-social domains, especially under the age of 24 months, after which their developmental status seems to deteriorate, especially in the gross and fine motor domains. Also, comparison of developmental status in Iranian girls and boys demonstrated slower development in a few domains at specific ages, in boys. Finally, an overall prevalence of developmental delays in Iranian children was determined.

**Conclusion:** The Persian version of the ASQ is a valid and reliable screening test. The deterioration of Iranian children's developmental status after 24 months age needs special consideration.

**Keywords:** ASQ, development, validation, cultural adaptation

### Benign movement disorders in childhood

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Developmental and benign movement disorders (DBMD) are a group of movement disorders with onset in the neonatal period, infancy, or childhood. They are characterized by the absence of associated neurological manifestations and by their favorable outcome, although developmental abnormalities can be occasionally observed. Full spontaneous remission is the rule, even if some disorders occasionally persist into adulthood. The underlying mechanisms of DBMD are generally unknown, but most may be related to subtle modifications of brain maturation or may represent age-dependent manifestations of a variety of disorders affecting immature neuronal networks. DBMD are mainly diagnosed and classified on the basis of physical examination and detailed history taking. Family video recordings can be very useful. Proper identification of DBMD is crucial, as it avoids unnecessary concern, unnecessary and costly investigations, and ineffective and potentially toxic treatments. Although movement disorders are a major field of adult neurology, they have received little attention in the pediatric setting, and the literature on DBMD is rather limited. This group of disorders includes: benign jitteriness of newborns, benign neonatal sleep myoclonus, benign myoclonus of early infancy, sleep-related rhythmic movement disorders, spasmus nutans, paroxysmal tonic upgaze, benign paroxysmal torticollis, transient dystonia of infancy, shuddering attacks, gratification behavior, stereotypic movements in healthy children, mirror movements, persistent mirror movement, sandifer's syndrome. The aim of this review is to provide practical information on the recognition and management of DBMD.

**Keywords:** benign, movement disorder, children

### Serum and csf zinc levels in children with first febrile convulsion admitted in Rasht 17th Shahrivar pediatric hospital

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**Background:** The relationship between neurotransmitters and trace element changes in biological fluids and febrile convulsions has been examined in some studies with conflicting results. The authors aimed to evaluate the relation, if any, of serum and CSF zinc status with first febrile convulsion.

**Methods:** In this case-control study, the authors assessed 40 children with a diagnosis of first febrile convulsion, aged between 6 months to 6 years; the control group consisted of 40 febrile children without convulsion. Lumbar puncture was performed for all patients with suspicion of meningitis or sepsis (if there was indication for LP); and only those patients were included in study if results of their CSF were negative for any infection. Serum & CSF zinc levels were measured by atomic absorption

spectrophotometry (AAS), and compared between two groups.

**Findings:** The mean serum zinc level was  $40.38 \pm 20.37$   $\mu\text{g}/\text{dl}$  in case and  $43 \pm 20.5$   $\mu\text{g}/\text{dl}$  in control group, without any statistically significant difference between two groups. The mean CSF zinc level in case and control groups was  $16.69 \pm 4.2$   $\mu\text{g}/\text{L}$  and  $18.03 \pm 4.1$   $\mu\text{g}/\text{L}$ , respectively. There was not any statistically difference between these two groups.

**Conclusion:** The results of this study suggest that febrile convulsions are not associated with reduction in serum and cerebrospinal fluid zinc concentrations.

**Keywords:** seizures, zinc, child

### Prevalence of Behavioral Inhibition in Preschool Children Tehran/Iran

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**Background:** One of the best identified risk factors for later anxiety disorders is the exhibition a high number of withdrawn/inhibited behaviors in childhood. The present study sought to examine the relationship between behavioral inhibition (BI) with some of the internal (personal) and external (family environment) factors in a sample of preschool children kept in care centers (kindergartens) in the capital city of Iran.

**Methods:** This was a cross sectional study in which data was gathered through a structured questionnaire that had separately been completed by parents and staff (usually teachers) of day-care centers. Sampling was done according to a (multistage) stratified cluster sampling so that the city divided into 22 strata as for municipal districts and each kindergarten in every district was considered a cluster. The sample size in each stratum was calculated based on the proportion of the preschool children in that stratum to the total number of preschool children in the city. After determining the number of the clusters required in each stratum, clusters were selected by random sampling, and then all of the children in that cluster were assessed. A total of 1403 children were assessed. Analysis was performed through complex sample analysis and logistic regression method was used.

**Findings:** The results showed that 7.4 % ( 6.1%-9.1%) of children according to parents' and 8.1 % ( 6%- 10.7%) of them according to teachers' evaluation categorized as behaviorally inhibited. This study identified both internal and external factors associated with the expression of behavioral inhibition in young children. The highest levels of behavioral inhibition were shown by children who were first child, single parent and whose mothers were less educated. Furthermore, the age of children, being chronically ill, death of someone close to the child and being interested in watching violent TV programs were significantly related to inhibited behaviors according to the parents or teachers rating even after controlling for other variables.

**Conclusion:** The results may suggest that behaviorally inhibited children more likely to experience adverse family environment factors. Therefore, a useful preventive measure is identifying children at risk in care centers or in schools and then, supporting them and their families through behavioral counseling by a psychologist.

**Keywords:** inhibited behaviors, preschool children

## Abnormal neuroimaging in children with the first unprovoked seizure

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**Background:** The first attack of unprovoked seizure is more frequent than recurrent one and neuroimaging is one of the main parts of the evaluation of these attacks in order to demonstrate the cause and predict the prognosis. The aim of this study was to determine the incidence of abnormal neuroimaging and related factors in children with the first unprovoked seizure.

**Methods:** A 7-year retrospective chart review was done on all children who were visited at Ali-Asghar Children's Hospital with the first unprovoked seizure and underwent neuroimaging including brain computed tomography or magnetic resonance imaging. The diagnostic criteria for the first unprovoked seizure in this study were based on the absence of any immediate or acute cause for the first seizure such as fever, head trauma, hypoglycemia, hypocalcemia, electrolyte imbalance and etc. We compared the rate of abnormal neuroimaging in patients according to different clinical and electroencephalographic (EEG) parameters.

**Findings:** One hundred and forty two patients (63 females, 79 males) were included in the study. Twenty eight patients (20%) had abnormal neuroimaging. CT scan and MRI were done in 63% and 37% of the patients, respectively. The most common abnormalities were cerebral dysgenesis (n=9) and cortical brain atrophy (n=6). Patients who were abnormal on neurologic examination had a higher rate of abnormal imaging in comparison with neurologically normal children (51% vs. 10%). Abnormal imaging was more frequent in children with an epileptiform activity in EEG compared to normal EEG (34% vs. 11%). Although not statistically significant, partial type of seizure, seizure recurrence within 24-hr and age 3-12 years were also associated with a higher rate of abnormal neuroimaging.

**Conclusion:** Neuroimaging should be considered in any child with the first episode of unprovoked seizure, especially those with an abnormal neurologic examination or abnormal EEG.

**Keywords:** children, first unprovoked seizure, neuroimaging

## Cerebral palsy and associated risk factors

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**Background:** Cerebral palsy is a group of non-progressive motor impairment syndromes caused by lesions of the brain arising early in development. In this study, we evaluated perinatal risk factors of children born in eastern and northern districts of Tehran city, when perinatal records were widely available.

**Methods:** This was a case-control study performed on one to six year-old children living in Tehran, at healthcare centers of Shahid Beheshti University of Medical Sciences and Asma Rehabilitation Center, over 12 months.

**Findings:** During the study period, 112 subjects in the case and 3465 in the control groups were studied. The main

factors associated with cerebral palsy were (odds ratios, confidence interval): neonatal convulsion (81.35, 35.09-188.6), low Apgar score (<5) at 5 min or beyond (21.83, 13.13-36.26), low birth weight (5.83, 3.47-9.77), mother's complication during pregnancy (7.83, 4.23-14.50) and maternal age over 35 years (3.88, 2.03-7.42).

**Conclusion:** Neonatal encephalopathy, low birth weight, and high risk pregnancy were the most powerful independent predictors of cerebral palsy in this population. The majority of infants with cerebral palsy were born at term; therefore, cerebral palsy is quantitatively mainly an issue of term infants.

**Keywords:** cerebral palsy (CP), low birth weight (LBW), neonatal encephalopathy, high risk pregnancy

## A comparison between buspirone and alprazolam in the treatment of generalized pediatric anxiety disorder

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**Background:** Paediatric Anxiety and resistant to various forms of treatment are increasing, thus our objective was to determine the safer and more effective drug between Buspirone and Alprazolam in the treatment of Paediatric Anxiety (Generalized Anxiety Disorder).

**Methods:** A total of 80 children, fifty females and thirty males aged between 12-14 years who were reporting to Al-Shafa Hospital, Gujrat, Pakistan, were treated with Buspirone 5mg/od, and Alprazolam 0.2mg/od for their Generalized anxiety disorder over a period of two months, during my administration of that hospital to the paediatrics outdoor department. Forty were treated with Buspirone tablets and the other forty with Alprazolam. The patients were followed up either on subsequent visits or by telephone. The medicines were provided by Tehran Darou/Chemie pharmaceutical company in Tehran, Iran for this study.

**Findings:** Buspirone had less side effects and was more effective in relieving paediatric anxiety symptoms in 37 of these patients, whereas 10 patients reported Alprazolam was better. Still Alprazolam had more side effects in these 10 patients.

**Conclusion:** Buspirone is superior to Alprazolam for the treatment of Paediatric Anxiety (Generalized Anxiety Disorder).

**Keywords:** buspirone, alprazolam, anxiety, paediatric

## Screening of developmental delay in Iranian children

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**Background:** Regarding the short and long-term benefits of early intervention for childhood developmental disorders, this study was carried out to determine the prevalence of developmental delay by the standardized form of the Persian version of the Ages and Stages Questionnaires in Iranian children.

**Methods:** This was a cross-sectional study. The study was carried out on 11000, 4-60 month-old children; in 19 age groups, in 41 selected cities throughout the country. Ninety physicians were invited from each of the selected cities to

Tehran in groups, and trained about the ASQ testing and scoring, during a 2-day workshop. The questionnaires were completed at the health-care setting by parents, and the average response rate was 95 %; (10516 parents).

**Findings:** Among the 10516 children studied, 5035 (47.87%) were girls. The average percentage of delayed children in the communication, gross motor, fine motor, problem-solving and social-personal domains adds up to 3.87, 4.04, 4.31, 4.15, and 3.69 %, respectively when considering the Iranian cut-off points. However, when considering cut-off scores of the normative American sample the figures change to 6.65, 5.54, 7.65, 3.87, and 4.71 %, respectively. In 19 age-domain groups, most frequently in the personal-social and fine motor domains (in terms of domains), and also most frequently at the 36 and 48 months of age (in terms of age ranges), girls show significantly higher scores than boys. Boys show significantly higher scores in 2 age-domain groups (gross motor domain at 20 and 22 months of age.)

**Conclusions:** These are not definite diagnostic results and are expected to be over-diagnosed due to the fact that they have been estimated by a screening tool. So it is necessary to adapt and standardize of a diagnostic developmental disorders test for Iranian children in order to early detection and intervention.

**Keywords:** screening, developmental delay, ages & stages questionnaires

### Screening and screening tools for early detection of developmental delays

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Developmental screening is defined as the utilization of short and standard tools to help diagnose children at risk of developmental delays. Screening completes the continuous process of ‘developmental surveillance’ and provides it with objective evidence (AAP). Developmental surveillance is a longitudinal, continuous and cumulative process for assessment of the developmental status of children and includes asking about parents’ concerns, medical history taking, developmental history taking, inspection of parent-child interactions, ... Using a tool is a systematic approach to detection and diagnosis and provides us with objective evidence. A proper developmental screening tool is one that preferably covers gross and fine motor, communication, cognition (or problem-solving), and social-emotional developmental domains; has a satisfactory level of validity and reliability; is fast and easy to carry out by any non-specialized trained person, and in any setting; is culturally and linguistically adapted; and is standardized for the population of concern. The AAP recommends that developmental screening be carried out at the 9, 18, and 24 (or 30)-months routine well-baby visits. Obviously, it needs to be started earlier and continued at more frequent visits in the “at-risk baby”, and those arousing certain concerns in their parents or their physicians. According to the AAP, the pediatrician is the best-informed professional with whom many families have contact during the first 5 years of a child’s life and to whom they look, as the expert not only on childhood illnesses but also on development. Many people mistake developmental screening tests for diagnostic tests and even I.Q. tests; many others mistakenly think that using developmental check-lists or only some sections of a global screening tool can replace the utilization of a complete one; some experts

think that screening tools are supposed to be used only when certain signs or symptoms of concern show up; some others do not believe in the results that are derived from screening tests and do not take them for serious; some other experts do not know which screening test is the most appropriate one to use for their clients. The developmental screening tools available in Iran will be presented at the conference.

**Keywords:** screening, early detection, child development, developmental delays

### The effects of sodium valproate, carbamazepine and phenobarbital on the serum total antioxidant capacity and nonenzymatic antioxidants in children with epilepsy

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**Background:** Experimental and clinical data suggest a supposed role of oxidative stress in the pathophysiology of seizures and epileptic syndromes. **Methods:** We designed a case-control study to compare serum total antioxidant capacity in children with newly diagnosed epilepsy with a group of sex- and age-matched healthy controls. A total of 130 participants (65 in each group) aged 1 to 17 years participated in this study.

**Findings:** Serum total antioxidant capacity values was significantly lower in the patients group before drug administration [mean (SD): 1.31 (0.19) mmol/L] compared to that of the control group [mean (SD): 1.46 (0.21) mmol/L] ( $P < 0.001$ ). In the patients group, no differences were found in the serum total antioxidant capacity before and 3 months after anticonvulsant monotherapy.

**Conclusion:** Results of our study suggest that, the alteration of serum total antioxidant capacity, and an increased vulnerability to oxidative stress should be considered in children with epilepsy.

**Keywords:** total antioxidant capacity, children, epilepsy, anticonvulsant, oxidative stress

### Spontaneous motor activity as a diagnostic tool- University of Social Welfare and Rehabilitation Sciences

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**Background:** Detection of children with a developmental disorder, such as cerebral palsy, at an early age is notoriously difficult. Recently, a new form of neuromotor assessment of young infants was developed, based on the assessment of the quality of general movements (GMs). Human fetuses and young infants have a repertoire of distinct patterns of spontaneous movements. A set of these movement patterns are known as general movements (GMs), which were defined by Prechtl as gross movements involving the whole body, and lasting from a few seconds

to several minutes, or longer. GMs are characterized by the variable sequence of arm, leg, neck and trunk movements which begin gradually, wax and wane in intensity, force and speed, and end gradually. Extension and flexion movements of the arms and legs are mostly complex and variable because of superimposed rotations and frequent slight changes in direction, which make the movements fluent and elegant. Initially GMs are complex, and then differentiate into single movements. GMs show no change during the fetal period, but change in early infancy into writhing, fidgety, oscillating, saccadic and swipes & swaps. If the nervous system is impaired, GMs lose their complex and variable character and become monotonous and poor. Einspieler reported that GMs' sensitivity and specificity for neurological prognosis of high risk infants are 96% and 95%, respectively. Clinical significance of GMs includes: 1. non-invasive, secure and easy observation, 2. high coincidence between trained observers, 3. high reliability 78-98%, mean 90% and, 4. correlation of abnormal GMs with the presence and degree of brain damage. Beside a sensitivity and specificity of 95% each, the assessment of GMs is quick, noninvasive, even noninvasive, and cost-effective compared with other techniques, e.g., magnetic resonance imaging, brain ultrasound, and traditional neurological examination.

**Keywords:** infant, minor neurological deficit, prediction, general movements

### Prevalence of all types of headache in children under 15 years came to neurology clinic in 2007-2008

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**Background:** Headache is one of the most prevalent and serious symptoms of nervous diseases that have important differential diagnosis. According to this subject, this study carried out for evaluation the prevalence of all types of headache in children less than 15 years came to neurology clinic in 2007-2008.

**Methods:** This Cross-sectional study carried out during 1 year (2007-2008) on children referred to neurology clinic. During this time 91 children with headache evaluated based on study variables. Data analysis was based on descriptive statistic and derived tables.

**Findings:** 35 patients (38/5%) were male and 56 patients (61.55) were female. The most age frequency in children with headache was in 8-10 age range (39.6%). The most etiology frequency was Migraine headache (58.2%) and Tension headache (21.9%). Migraine headache in males was more than females (62.95% versus 55.4%) and Tension headache in females was more than males (33.9% versus 28.6%). The most location of headache was bilateral (48.4%) and the most duration of headache was between 1-24h (74.7%). The quality of headache was pulsatile in 42.9% of cases, Compressive in 30.8% of cases and in 26.4% of cases. 73.6% of patients had associated symptoms. In migraine headache' group, Pallor, Phonophobia, Nausea and Photophobia and in Tension headache' group, Pallor, Phonophobia and Vomiting were the most associated symptoms and in tumoral headache and CVA group, Nausea and Vomiting were the most associated symptoms. 20.8% of children with Migraine headache, 10.3% of children with Tension headache and 50% of children with headache due to CVA had aura. 57.1% of patients had aggravating factors and the most of these factors were in

Migraine headache' group. 78% of patients had positive family history of headache.

**Conclusion:** Migraine and Tension headache are the most etiologies of headache and determination of risk factors and patient's education for reducing the rate of headache is necessary.

**Keywords:** headache, children, migraine

### Speech and language developmental screening in 4-60 months old children in Tehran

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**Background:** This research was designed to speech and language developmental screening of 4-60 months old children in Tehran by using ASQ and PDQ.

**Methods:** In this study 196 children aged 4-60 months were screened by two parental based developmental questionnaire ASQ and PDQ to evaluating their Speech and language development. The tests were performed in four Child Health Clinics, in north, south, east and west regions of Tehran city. Convenient sampling was used. Obtained data was analyzed by SPSS software.

**Findings:** Speech and language Developmental disorders were observed in 3% of children who were examined by ASQ and in 6.6% of children who were examined by PDQ. Also by using ASQ and PDQ 3% and 9.7% of children were detected as suspicious for speech and language developmental problems respectively. The estimated consistency coefficient between ASQ and PDQ was 0.18 for delayed cases and 0.29 for suspected children, which are weak. **Conclusion:** This research showed that the results of speech and language developmental screening of 4-60 months old children in Tehran by using ASQ and PDQ were different. For choosing a developmental screening tool we have to consider psychometric characteristics of test (specificity, sensitivity, positive predictive value and negative predictive value). It is suggested that the results of each of the two screening tests ASQ and PDQ are compared with a standard diagnostic test.

**Abbreviations:** ASQ= Ages and Stages Questionnaires, PDQ= prescreening developmental questionnaire

**Keywords:** speech and language developmental screening, ASQ, PDQ

### Etiology of deafness in Isfahan Cochlear Implant Center's children candidates

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**Background:** One of the most important pediatric disorders is Hearing loss and if it is not early detected and then treated; children would face with lots of speech, language and cognition problems. In this study, tried to detect frequency of risk factors in Isfahan cochlear implant center candidates.

**Methods:** This is a cross sectional -descriptive study which performed on 100 cases (march 2010-march 2011) whom randomly selected with these features; severe to profound SNHL and age < 5 yrs. Audiological test Protocol consists

of preterm and infancy case history, Tympanometry, Acoustic Reflex, Play Audiometry, ABR, OAEs and ASSR tests. Statistical data was analyzed via SPSS software (version 11.5).

**Findings:** There are 60 males and 40 females with average age of 38 months and average of hearing loss detection age of 12 months. Frequency of hearing loss between cases included severe SNHL (13%), severe to profound SNHL (36%) and profound SNHL (51%). The most prevalent risk factor was familial relationship of parents (73%), hearing loss history (41%), hyperbilirubinemia (43%) and infancy convulsion (16%) respectively.

**Conclusion:** In according to hearing loss risk factors in this study, hearing screening program in high risk infants and children was essentially important, then early detection and intervention protocols could prevent irretrievable effects on speech, language and cognition development of children.

**Keywords:** hearing loss, high risk factors, hearing screening, cochlear implant

### Tics in children a practical approach

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**Background:** Tics are involuntary, purposeless contractions of functionally related groups of skeletal muscles, noises or involuntary usage of words. Tics can be classified by mode of manifestation (motor, vocal or phonic) and complexity (simple or complex). Tics are the most frequent abnormal movements in childhood. Tourette syndrome is a neurological disorder manifested by motor, vocal or phonic tics and are often accompanied by obsessive-compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD), poor impulsive control and other co morbid behavioral problems. The goal of treatment should not be to completely eliminate all tics but to achieve a tolerable suppression and maintenance of quality of life. Pharmacologic treatments include clonidine, guanfacine, baclofen, benzodiazepines, and neuroleptics.

**Keywords:** tic, Tourette syndrome

### Comarison effects of the time of breast feeding in the simple febrile seizure versus complex in children less than seven year age

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**Background:** Convulsion is the most common neurologic finding in children as 10 % of kids experience such clinical condition sometime during their life. There are several types of convulsion, but the most common type of the disease is the febrile seizures observed as simple or complex febrile seizures. The aim of this study was to identify the effect of time of breast feeding on the simple febrile seizure versus complex in Iranian children under 7 year age.

**Methods:** In this cross sectional descriptive study in Tabriz medical university of medical sciences from 2010 to 2011, 137 children with febrile seizures were studied. Time of breast feeding was evaluated in simple and complex febrile seizures.

**Findings:** 137 children with mean age 42.3 months including 77 (56.2 %) boys and 60 (43.8 %) girls were studied. In this study, the time of breast feeding had

significant role according to regression models in complex febrile seizures.

**Conclusion:** Our study showed that the time of breast feeding is the risk factor in occurrence of the complex febrile seizure versus the simple one.

**Keywords:** febrile seizure, risk factor, epilepsy

### Clinical characteristics of children with enuresis

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**Background:** The pathophysiology of nocturnal enuresis is complex, involving genetic, somatic and behavioral factors. There is increasing evidence for organic abnormalities. Furthermore, elevated psychological problems are noticed in the enuresis population. In this study, our goal was to determine the psychological factors can be reconfirmed and who children at risk for difficult –to-cure enuresis.

**Methods:** A total number of 50 children and adolescents aged 3-14 years old with nocturnal enuresis from 1500 referrals to child and adolescent psychiatry clinic were enrolled in the study. Subjects were selected from children and adolescents who were referred to child and adolescent psychiatric clinic of Tehran children medical center in 2009-2010. The diagnosis was made by a child and adolescent psychiatric according to DSM-IV-TR criteria and demographic characteristics and child symptom inventory-4 (CSI-4) were recorded.

**Findings:** There were 36(72%) boys and 14(28%) girls with night-wetting problems. The prevalence study revealed that 39 (78%) children had a co morbid ADHD and 16 (32%) children had a co morbid ODD diagnosis. According to these results social and economic problems were 64% and 30% respectively. Peer group relationship and academic problems were 52% and 82% too.

**Conclusion:** The most common problems in children with enuresis were social, economic, peer relationship and academic difficulties.

**Keywords:** clinical characteristics, enuresis, child and adolescent

### Evaluation of febrile convulsion among 3 month-6 year old children referring to south health centers in Tehran 2009

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**Background:** The present study was designed to evaluate the frequency & clinical manifestations of the febrile convulsion (FC) in children below 6 years in an Iranian sample.

**Methods:** 600 patients between 3 months – 6 years (333 females & 267 males with mean age  $21.8 \pm 16.2$  months) referring to south health centers in Tehran were selected randomly. They were evaluated on demographic data (age, gender and birth order), socioeconomic level (parents' education level, maternal job, parents' consanguinity relationship & number of children), perinatal history (birth weight, gestational age, type of birth and mother's age during pregnancy), medical history (neurological disease,

history of FC or epilepsy in family) and clinical manifestations of FC (type & duration of FC, recurrence, etc). Data collected by interviewing to children's mothers.

**Findings:** The history of FC was seen on 39 patients (6.5%). 8.1% of females and 4.5% of males had FC ( $p < 0.074$ ). The mean age of patients ( $38.6 \pm 15.8$  months) was significantly different from that of other children (Mean Difference: 17.9, 95%CI: 13.5-22.45;  $p < 0.001$ ), but the difference between two genders was not significant. There was no relationship between the prevalence of FC and parents' consanguinity relationship or paternal education level. Maternal education level or maternal job significantly influenced the FC prevalence ( $p < 0.001$ ). There was no relationship between the prevalence of FC and maternal age during pregnancy, number of children in the family or birth order of the child. Moreover, there was no relationship between the prevalence of FC and the child's gestational age, birth weight or type of birth. Positive family history of FC was significantly influenced the prevalence of FC ( $p < 0.001$ ). The relation between the prevalence of FC and positive history of FC in the child's mother, father or other siblings was significantly different too ( $p < 0.034$ ,  $p < 0.001$  and  $p < 0.001$  respectively). Furthermore, positive history of epilepsy in the child was significantly influenced the prevalence of FC ( $p < 0.001$ ) the same as the positive history of epilepsy in the child's mother, father or other siblings (in all  $p < 0.001$ ). The prevalence of FC was significantly higher among children with positive history of epilepsy ( $p < 0.001$ ). Mean age of FC first attack was  $23.3 \pm 7.8$  months. The duration of an attack was reported on less than 1 minute in 17.9%, 1-5 minutes in 64.1%, 10-15 minutes in 10.3%, more than 15 minutes and less than 30 minutes in 5.1% and more than 30 minutes in 2.6%. 92.3% of children had a simple FC and 7.7% had a complex one. Recurrence was seen on 35.9% of patients. The number of recurrence was one in 85.8% of cases and two in 24.2% of patients.

**Conclusion:** We detected a high prevalence of FC among the studied children and a statistically significant relationship between the maternal education level and job, positive family history of FC or epilepsy. Although our results confirmed the findings of other studies, it is needed to perform larger community-based studies to generalize the results to Iranian children.

**Key Words:** febrile convulsion, FC, prevalence, clinical manifestations

### **Efficacy and safety of intravenous sodium valproate versus phenobarbital in controlling convulsive status epilepticus and acute prolonged convulsive seizures in children**

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**Background:** Status epilepticus and acute prolonged seizures are the most common neurological emergencies in children. Such events have high morbidity and mortality rates along with poor outcome depending on their duration, and etiologies. Therefore, such seizures warrant urgent

treatment involving appropriate doses of anticonvulsants. Benzodiazepines, phenobarbital, and phenytoin are the most commonly used anticonvulsants for controlling status epilepticus and acute prolonged seizures. However, these medications have well known adverse effects. Studies in adults and children have shown the efficacy and safety of rapid infusion of valproate in controlling status epilepticus. However, few well designed randomized trials have been reported in children and there remains a paucity of data regarding intravenous sodium valproate use in children. Our aim was to evaluate the efficacy and safety of valproate rapid loading in children with status epilepticus and acute prolonged seizures comparing with intravenous phenobarbital.

**Methods:** Sixty children (30 children in each group) with convulsive status epilepticus and acute prolonged seizures were enrolled and were randomized to receive either valproate or phenobarbital. The main outcome variable was termination of all convulsive activity, and subsequently, recovery of consciousness should be achieved.

**Findings:** Intravenous valproate rapid loading was significantly more successful in seizure termination (77%) in contrast to phenobarbital (37%) (Fisher Exact Test,  $P = 0.004$ ). Overall clinical adverse effects in phenobarbital group, was 74%, while in valproate group was 24% (Fisher Exact Test,  $P < 0.001$ ).

**Conclusion:** In conclusion, rapid loading of valproate is effective and safe in controlling convulsive status epilepticus and acute prolonged convulsive seizures in children. Intravenous valproate could be considered as a suitable choice for terminating status epilepticus and acute prolonged seizures.

**Key words:** status epilepticus, acute prolonged seizures, intravenous sodium valproate, phenobarbital, children

### **Neurologic complications of malnutrition**

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**Background:** Malnourished children constitute approximately 75% of the preschool population in developing countries, so regarding to negative effect of malnutrition in developing brain in childhood period, early recognition and treatment of the problem is necessary.

**Neurologic Features:** Neuropathologic studies reveal the brain of a malnourished infant to be small for the infant's chronologic age, and its number of neurons, degree of myelination, and total cerebral lipid content to be reduced. Periods of CNS growth spurt (in humans between 15 and 20 weeks' gestation, when neuronal multiplication is maximal, and between 30 weeks' gestation and the end of the first year of extrauterine life, when glial division occurs) are times when the brain is particularly vulnerable to experimental nutritional deficiency. Most studies show that head circumference varies directly with nutritional status and is often below the third percentile. It is less affected than height and weight. Hypotonia and reduced deep tendon reflexes are common; they are more marked in the lower extremities, particularly in the proximal musculature. "Soft" neurologic signs, notably impaired fine motor coordination and the presence of choreoathetoid movements, are seen far more commonly in malnourished children than in control children with normal nutritional status. The EEG demonstrates nonspecific abnormalities such as diffuse slowing. These are more commonly seen in malnourished than in control children. Nerve conduction times are significantly delayed in malnutrition. As a rule,

the degree of delay correlates with the duration and the severity of malnutrition, and thus is more marked in marasmus. when malnutrition is severe and long-standing, an arrest in myelination of peripheral nerves occurs. Neuroimaging studies demonstrate widened cortical sulci, widened cerebellar folia, and enlarged ventricles. These abnormalities resolve quickly with nutritional rehabilitation, suggesting that they do not represent cerebral atrophy, but consequence of a decrease in plasma proteins and reduced colloid osmotic pressure.

**Treatment:** Approximately one-fifth of children with kwashiorkor become drowsy 3 to 4 days after being started on a normal diet. Although the condition is most often self-limited, it is occasionally accompanied by asterixis and can progress to coma with fatal outcome. The nature of this complication is unknown, but it is believed to reflect hepatic failure resulting from the ingestion of relatively large amounts of protein. Even more rarely, a transient syndrome marked by coarse tremors, parkinsonian rigidity, bradykinesia, and myoclonus has been observed in children with kwashiorkor 6 days to several weeks after starting a corrective high-protein diet.

**Prognosis:** Growth-retarded children who received supplementary feedings had higher verbal intelligence than their undernourished sibling controls, a difference that could not be accounted for by socioeconomic factors.

**Keywords:** malnutrition, neurologic complication, kwashiorkor, marasmus

### The most common causes of Acute Flaccid Paralysis in under 15 years old children in Iran 2008-2010

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**Background:** Acute flaccid paralysis (AFP) is a clinical syndrome characterized by rapid onset of weakness progressing to maximum severity within several days to weeks. It is a complex clinical syndrome with a broad array of potential etiologies. AFP surveillance system is not only a key strategy of Global Poliomyelitis eradication initiative but also a competent aid to have a precise figure of the most common causes of this illness throughout the country. In a standard AFP surveillance system it is expected that Guillain-Barre syndrome cases could be detected in a rate of at least 1 per 100000 under 15 years old population annually.

**Methods:** Data gathering for AFP surveillance system has been started since mid 1995 in Iran. Since that time any case of acute flaccid paralysis (sudden onset of flaccid paralysis in a child under age of 15 years and without history of recent trauma) is reported and followed by virologic and clinical examinations. All cases will be finally reviewed by national or provincial classification committees which are composed of Pediatricians, Neurologists and infectious diseases specialists. The final diagnosis of cases that are discarded as non-Polio will be identified by these committees.

**Findings:** AFP surveillance system analysis during 2008-10 shows that number of AFP cases reported has been 561,548 and 622. Number and percent of Guillain-Barre syndrome cases was 334(59.5%), 320(58%) and 321(52%). Number and percentage of transverse myelitis in 2008-10 were 7(1.2), 5(0.9) and 12(2.1). Number and percentage of

traumatic neuritis in this period were 2(0.4%), 2(0.4%) and 6(1.2%). The most common causes of AFP other than Guillain-Barre syndrome were Arthritis(6.4%), Ataxia(3.2%), Myositis and ADEM(each 2% ) in 2008; Arthritis(7.3%), Encephalitis(3.8%), and Ataxia(3.3%) in 2009; Arthritis(7%), Synovitis and Viral infections(each 4.3%) and Myositis(3.5%) in 2010. Rate of Guillain-Barre syndrome reported per 100000 under 15 years old population has been 1.85, 1.74 and 1.72 respectively.

**Conclusion:** This study reveals that Guillain-Barre syndrome has been the main cause of AFP in less than 15 years old age group in period of 2007-2010 and by itself it shows that one of the performance indicators of AFP surveillance system has been also met.

**Key words:** Acute Flaccid Paralysis, Guillain-Barre syndrome, poliomyelitis

### The survey of parents' anxiety and knowledge about care of child with febrile convulsion

*Arezoo Ghavi, Lili Rostamnia, Ezat Paryad*

**Background:** Important changes in life cause anxiety. One of these changes is child's hospitalization. Febrile convulsion is one of common cause of children's hospitalization in emergency departments and other clinics. In US 2% to 5% of children, younger than 5, experience fever-related seizure. Child fever is disturbing for parents because it shows probability of seizure, brain injury and even death. So parents' knowledge about child care can affect severity of their anxiety. The aim of this study was to determine parents' anxiety and knowledge about care of child's hospitalization with febrile convulsion in Rasht hospitals in 2009.

**Methods:** This was a cross sectional survey with aim-based sampling. Sample was 101 mothers whose children were hospitalized because of fever-related seizure. we used a three-part questionnaire: Sociodemographic information of child and caregiver (father, mother, grandmother and grandfather) in part one. In part two we used Hospital Anxiety and Depression Scale and part three was about caregivers' knowledge about caring of child with febrile convulsion. Entrance criteria were hospitalization because of fever-related seizure and admission without any other problems.

**Findings:** Most of the caregivers were child' mothers (74/3%) and most of the samples did not have accepting knowledge (68/3%) and most (55/4%) were not anxious. This survey showed a significant relationship between anxiety with job ( $P= 0/043$ ) and relation of caregiver ( $P= 0/005$ ) and also between knowledge with gender ( $P= 0/006$ ) and hospitalization history ( $P= 0/043$ ). K2 showed no significant relationship between anxiety and knowledge.

**Conclusion:** According to fever-related seizure's problem, it seems necessary to teach parents about care of these children to prevent sudden rises of body temperature.

**Key words:** febrile convulsion, anxiety, knowledge

### Cognitive flexibility deficits in autism spectrum disorders: Evaluating measures by gender difference

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**Background:** One of the great debates that have been going on for years is that deficits in executive functions may underlie various social and non-social impairments in individuals with autism spectrum disorders. The experimental data are rather controversial on which domains of executive dysfunction are responsible for the characteristic difficulties in ASD. The aim of this study was to assess gender differences in cognitive flexibility among autistic students.

**Methods:** A total of 123 autistic students (99 boys, 24 girls), aged 7 to 14 years, from autism specific schools were enrolled in the study. To examine set shifting abilities, the manual 64-response card set of the Wisconsin Card Sorting Test (WCST) was employed. The scoring variables were: 1- percentage of perseverative errors 2- percentage of non-perseverative errors 3- number of categories achieved 4- number of failing to maintain set. Autism symptoms were also recorded using Autism Treatment Evaluation Checklist (ATEC).

**Findings:** The MANCOVA analysis revealed that there was a significant difference between the male and female subgroups regarding cognitive flexibility while covarying for subscale 1 of ATEC ( $F=3.567$ ,  $P<0.009$ ; Wilks lambda = 0.89). Furthermore, the results of ANCOVA showed that the girls made significantly more perseverative errors ( $F=6.445$ ,  $P<0.012$ ) and achieved less categories ( $F=10.111$ ,  $P<0.002$ ).

**Conclusion:** Results indicated that girls showed striking deficits in perseverative errors and categories achieved. Gender difference might be considered as an important contribution factor in executive flexibility skills and consequently in assessment and interventional programs for children with ASD.

**Keywords:** Autism Spectrum Disorders, cognitive flexibility, gender, WCST

### Cross-cultural Adaptation and reliability of the Autism Treatment Evaluation Checklist to Farsi

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**Background:** Knowing autism as the most growing neurodevelopmental disorder worldwide, there are few well validated brief measures available in none English-speaking countries that can be used to assess the symptom severity of young children with autism spectrum disorders (ASD). In the present study, the Autism Treatment Evaluation Checklist (ATEC) was used as part of a comprehensive health survey to investigate the biopsychosocial profile of school children with ASD. The study objectives were to translate and adapt the ATEC to Farsi language and evaluate its reliability in pupils with ASD.

**Methods:** The cross-cultural adaptation was carried out according to the recommended guidelines: Initial translation, back translation, revision by Expert Committee. First, two bilingual experts who had Farsi as their mother language translated the questionnaire in parallel. Thereafter, two other translators whose mother language was English then did the back-translation. A committee including five experts evaluated and matched up the translations obtained, developing the final version for pretest application. So, the content validity was investigated by the expert committee.

The pilot was carried out with 25 children with ASD. Psychometric properties were evaluated by administering the questionnaire to 108 individuals with ASD. The reliability was estimated through testing for internal consistency.

**Findings:** The results specified good content validity and internal consistency. Cronbach's alpha correlation coefficients were very high for total score (0.92), accordingly, internal consistency of four subscales was between 0.85 and 0.89. Furthermore, Guttman split half coefficient was 0.72 for total score and for subscales were 0.76-0.82.

**Conclusions:** We conducted a *successful process of cross-cultural adaptation*. The adapted instrument showed good content validity and high reliability scores. The results suggested that it could be reliable to use ATEC for autism symptoms assessment in Iranian culture.

**Keywords:** Autism, assessment, severity, cross-cultural, reliability

### The effect of cognitive task on postural sway in autism spectrum disorder

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**Background:** Performing cognitive and motor tasks simultaneously, which is called dual task, is encountered to controversy approaches among children with motor disorders. Since in everyday life, each person can encounter situations in which they should do some activities concurrently and also there are deficits in cognition and motor control among autism spectrum disorder (ASD), so it's vital to investigate the effect of dual tasks on postural control. The outcomes can lead us to increase children's quality of life and giving prompt suggestions for raising the accuracy of assessments and accelerate the potential for therapeutic interventions.

**Methods:** Fifteen boys with high function autism (age: 11.13±1.24, height: 146.65±9.3, weight: 43.34±9.85) were recruited in the study. Individuals with sever intellectual disabilities and other neurological or skeletal disorders were excluded. Also, fifteen sex and age matched typically developing children (age: 11.26±1.55, height: 148.78±9.49, weight: 42.62±11.87) were included. Sway parameters in the single (only standing) and dual (standing and counting) tasks were calculated with force plate.

**Results:** The postural sway score was higher in autistic group than control ( $p<0.05$ ). Root mean square (RMS) and mean velocity were statistically significant in both conditions. Also, the percentile changes were higher in the mean velocity in single to dual task among ASD group compared with control ( $p=0.04$ ). Dual task makes the sway parameters increased. These changes are significant in mean velocity among patient ( $p=0.05$ ) and also RMS among healthy children ( $p=0.001$ ).

**Conclusion:** Regarding to this knowledge, some steps can be taken in order to give therapeutic suggestions for improving the children's quality of life. Also, not overlapping the cognitive and motor tasks should be considered in the assessment and therapeutic interventions among children.

**Keywords:** Cognitive task, postural sway, autism spectrum disorder

## **Neuroimaging, clinical and genetic analysis of novel and known congenital neurodevelopmental brain malformations followed by deep sequencing**

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Intellectual disability (ID) occurs as a symptom in heterogeneous groups of neurodevelopmental disorders. Three of the most important contributions in understanding of the structural or functional brain defects are the capacity to perform detailed neuroimaging, the ability to perform highly advanced genomic testing and the accurate and professional characterization of the patients. Neuroimaging

could provide more refined correlations between clinical and molecular evaluations, and could result in to the identification of genetic causes of neurodevelopmental brain diseases. We have investigated one hundred mentally retarded patients clinically candidates for neurodevelopmental brain malformations. Up to now, we have performed neuroimaging for 80 families, which for twenty of them next generation sequencing have been recently performed to identify genetic defects as well. We could identify 20 families with cerebellar hypoplasia or atrophy, two families with Joubert syndrome type 3 (with mutations in AHI1), two families with CP like syndrome and mutations in AP4 gene as a recently identified syndrome, one family with CA8 syndrome and two families with spinocerebellar ataxia type 14 syndrome (with mutations in PRKCG). Our findings suggest that more than thirty percent of autosomal recessive ID (ARID) families with neurologic symptoms suffer from different types of neurodevelopmental brain malformations.

**Keywords:** neurodevelopmental brain malformation, cerebellar hypoplasia, Joubert syndrome, AP4 gene, AHI1 gene, Iran

## Rheumatology

### First report of Macrophage activation syndrome in 5 cases with juvenile idiopathic arthritis (JIA) in Iran

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**Background:** Macrophage activation syndrome (MAS) is a rare complication of children with rheumatic diseases. (MAS) has been reported in association with many rheumatic diseases, most commonly in systemic juvenile rheumatoid arthritis (SoJIA). The aims of the study were to review clinical features, treatment, and outcome of (MAS) in 5 cases.

**Methods:** Retrospective review of 5 cases of MAS from the charts of 120 patients with juvenile idiopathic arthritis, were performed from collected data base of 5 children with MAS from 1997 to 2007, in Children Hospital Medical Center, at Tehran University. Although the clinical features of MAS have been well documented, early diagnosis can be difficult; No remitting fever and decreased platelet and white blood cell counts led to a diagnosis of MAS.

**Findings:** five patients (four girls), and (one boy) were considered to have evidence of MAS. The primary diagnosis was systemic onset juvenile idiopathic arthritis in three, polyarticular juvenile rheumatoid arthritis RF + in one, and systemic lupus erythematosus in one. Mean age of onset was 2.5 years (3.7 sd 1.2), and duration prior to MAS, 3.5 years (mean 1.9sd 1.04). Naproxan medication was identified as a trigger in one case, methotrexate in another case, and three other cases had infections prior to MAS. The clinical manifestation at presentation included, high grade fever, new onset of hepatosplenomegaly, and lymphadenopathy. Platelet counts fell dramatically from an average of 446,000 to 20,000 per micro liter. Mean erythrocyte sedimentation rate (in three patients) was from 99 to 128 mm/h. Four cases had abnormal liver function tests during the course of disease, and three had coagulopathy. Bone marrow examination supported the diagnosis with definite haemophagocytosis in four out of five cases. All patients received high dose steroids (four intravenously, and one orally); three cases received cyclosporine; two cases received cyclophosphamide, and two cases treated with CellCept. Two of five patients with significant renal impairment died.

**Conclusion:** JRA is a common disease affecting about 1% of children aged 5 months to 16 years and accounts for above 10 to 20% of RA in the United States(1). MAS is a rare and potentially fatal complication of childhood rheumatic disorders. Most of our patients were females, and most cases were preceded by infection. Bone marrow studies supported the diagnosis.

**Keywords:** macrophage activation syndrome, Juvenile rheumatic arthritis, familial hemophagocytic, hemophagocytic lymphohistiocytosis (HLH)

### "Familial DLE and C1q deficiency" cases report

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**Background:** C1q deficiency is a rare genetic disorder with a defect in the early part of the complement cascade and is the most common deficiency of the three subcomponents (C1q, C1r, C1s) of C1. C1q deficiency can vary from silent form" in heterozygous form" to fulminant bacterial infection in homozygous form". C1q deficiency like other forms of deficiency in the early components of the classical pathway predisposes patients to autoimmune disorders especially to systemic lupus erythematosus (SLE). This susceptibility in homozygous form of C1q deficiency is greatest in severity and strength among other forms and 90% of these patients can develop SLE. Immunologic test is positive for autoantibodies to ribonucleoproteins such as "Anti Ro Ab" and "Anti SM Ab" and negative for "Anti ds DNA". Treatment with oral corticosteroid and hydroxychloroquine can resolve some of the signs.

Case series: We report two members of one family; a 4.5-year-old boy and his sister a 1.5-year-old girl. Their parents were related. The boy presented with facial, especially malar rash from 5 months ago which spread to trunk and limbs. Facial rash was erythematous papules with desquamation. He had also mucosal lesions in his mouth and didn't have systemic involvement. Pathologic report of skin lesions was "Lichenoid tissue reaction pattern, compatible with LE". Immunologic test showed "Low C1q level (< 11.5)". Other immunologic tests and other studies were normal. Another case is a 1.5-year-old girl from the same family, involved by erythematoid rash in her face and back without desquamation and finger's pulp erythema from 4 months ago. She didn't have mucocutaneous and systemic involvement. Pathologic report showed "Lichenoid reaction compatible with LE". She had a "low C1q level" in her immunologic test and other tests and studies were normal. For both of them treatment started with oral corticosteroid and hydroxychloroquine and supportive care. Their condition was better after 6 month follow up.

**Keywords:** C1q deficiency, DLE

### Synovial cyst as sole manifestation of JIA- Case Report

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**Background:** Synovial cysts are fluid-filled spaces lined by synovial membrane. Synovial cysts mainly occur in children, but there are some reports describing synovial cysts in adults. The cysts are infrequent in Juvenile Idiopathic Arthritis (JIA). The most reported location of Synovial cysts is gastroneamiose semimembranous bursa (Bakers cyst). Synovial cysts have been rarely seen in other locations such as interphalangeal joints, around the wrist and ankle,

elbows, hips and apophyseal joints of the spine. The cysts are common especially in the systemic form of disease and during periods of high disease activity. Compression of adjacent neuro-vascular structures, infection and rupture are complications of synovial cysts. Intermittent claudication can result from popliteal cysts by compromising arterial supply. The cyst may mimic adenopathy, haematoma or tumour.

**Case Report:** We present a case of Juvenile Idiopathic Arthritis (JIA) with synovial cysts. A 22 months child attended the valiasr hospital, Imam Khomeini hospital, Tehran, Iran in August 2011. He suffered from many soft tissue masses in his hands and feet. The onset of disease was from age of 8 months with a mass in his hand without any bleeding, pain and movement. The number of masses gradually increased and distributed in his hands wrist, fingers, feet and joints. The PIP joints exhibited some adhesive and symmetric cysts with chronic pain, but without movement. There were no underlying or systemic diseases. Examination showed normal height, weight, temperature and blood pressure. Patient had normal growth. All routine joints examination was also normal. Needle aspiration examination revealed an inflammation in all cysts fluids without any sign of malignancy. He was diagnosed with JIA. His therapeutic regimen consisted of Ibuprofen syrup and Hydroxychloroquine tablet. Three months later he was referred to this hospital. Examinations showed a modest improvement and a reduction in his cysts size. Patient follow up was performed and showed that all synovial cysts resolved with medical treatments.

**Key Words:** Synovial cysts, JIA.

## Familial Mediterranean fever

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**Background:** Familial Mediterranean fever (FMF) is an autosomal recessive disorder characterized by sporadic, paroxysmal attacks of fever and serosal inflammation. The disease is caused by mutations in the MEFV gene. Attacks subside spontaneously within one to three days, without residue. Continuous treatment with colchicine, reduces attack frequency, duration and intensity in the majority of patients, and prevents development of secondary amyloidosis. **Clinical features:** Abdominal pain is the most common presenting feature of FMF, occurring in 95% of patients. The typical manifestations of FMF include fever, peritonitis, pleuritis, arthritis, and erysipelas-like erythema. Chest attacks, due to inflammation of the pleura, are reported by 30% of the patients. A fourth disease feature, erysipeloid erythema, is described in 7 to 40% of patients. **Laboratory:** FMF attacks are associated with a nonspecific increase in inflammatory

mediators, such as serum amyloid A, fibrinogen, ESR and CRP, as well as an elevation of the white blood cell count,

**Diagnostic criteria:** Typical Attacks: 1. Peritonitis (generalized) 2. Pleuritic (unilateral) or pericarditis 3. Monoarthritis (hip, knee, ankle) 4. Fever alone 5. Favorable response to colchicines. Minor Criteria: Incomplete attacks involving one or more of the following site: 1. Abdomen 2. Chest 3. Joint 4. Exertional leg pain 5. Favourable response to colchicines. Supportive Criteria: 1. Family history of FMF 2. Appropriate ethnic origin 3. Age < 20 years at disease onset 4. Features of attacks: I. Severe, requiring bed rest II. Spontaneous remission III. Symptom-free interval IV. Transient inflammatory response, with IV. Transient inflammatory response, with one or more abnormal test result(s) V. White blood cell count, erythrocyte sedimentation rate, serum amyloid A, and/or fibrinogen 5. Episodic proteinuria/hematuria 6. Unproductive laparotomy or removal of normal appendix 7. Consanguinity of parents. Definitions: The requirements for diagnosis of familial Mediterranean fever are  $\geq 1$  major criteria, or  $\geq 2$  minor criteria, or 1 minor plus  $\geq 5$  supportive criteria, or 1 minor criterion plus  $\geq 4$  of the first 5 supportive criteria.

**Key words:** Familial Mediterranean fever, Clinical features, Treatment

## Acute Hemorrhagic Edema of Infancy; a report of five Iranian infants

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**Background:** Acute hemorrhagic edema of infancy (AHEI) is a benign self limiting leukocytoclastic vasculitis in young children. Serious complications, e.g. renal and gastrointestinal involvement, are not usually detected in AHEI patients.

**Case Presentation:** We report five patients with AHEI. Our patients were 17 to 21 months old. One patient presented with gastrointestinal bleeding due to this syndrome, the other one experienced second attack and scrotal edema due to epididymo-orchitis, while the third patient had renal involvement as hematuria and the other one had bilateral auricular chondritis. One of our cases was a typical case of AHEI without any complications, so a skin biopsy was not necessary. In this study, we describe the symptoms, probable triggering factors and treatment of choice for each patient.

**Conclusion:** Although AHEI is a childhood vasculitis with no impairment of the general condition, some organ involvements such as gastrointestinal, renal or scrotal lesions and rarely chondritis are probable in these patients.

**Key Words:** Hemorrhagic Edema; Henoch-Schoenlein Purpura; Leukocytoclastic Vasculitis; Gastrointestinal Bleeding; Hematuria

## Surgery & Emergency Medicine

### An unusual case of perforated appendicitis

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**Background:** Appendicitis is a relatively rare cause of chronic or recurrent abdominal pain in children. Appendicitis can usually be diagnosed on Completion of a history and physical examination (abdominal pain, vomiting, right lower quadrant tenderness and guarding), although laboratory evaluation with a urinalysis and White blood cell count can be of assistance. In the few cases where doubt remains, plain films of the chest and abdomen can be helpful for differential diagnosis, but none of them can prove the appendicitis. Difficulties in early diagnosis particularly in children often led to complications such as perforation with mean time about 36 hours from the onset of symptoms. The shorter time period is seen in younger children which might be as little as 6 hours in children younger than 5 years. Thus most children younger than 5 years have perforated appendicitis at operation. Actually complications like abscess formation and appendix perforation will to be decreased in light of useful and diagnostic procedures like abdominal computed tomography scanning (abdominal CT scan). We here report a patient with chronic recurrent abdominal pain whose evaluation led to appendicular abscess.

**Case presentation:** A 4 year old girl presented to our emergency department with a history of abdominal pain which started from 20 days ago; fever, anorexia, constipation, nausea, vomiting, dysuria with bad odor urine were some other signs that led to seeking medical attention. She took some drugs with diagnosis of UTI (urinary tract infection) and viral gastroenteritis but without improving. She referred to us because of getting worse condition and admitted in our ward. Physical examination revealed low grade fever, conjunctivitis, with abdominal tenderness localized in right lower quadrant without radiation and rebound tenderness. A mass also was palpated in RLQ during abdominal examination. The results of hematological and biochemical analysis; including complete blood count and differential, alkaline phosphatase, aspartate aminotransferase, alanin aminotransferase, Na, K, urea, creatinine, blood sugar, urine analysis, erythrocyte sedimentation rate, C reactive protein, as well as abdominal ultrasound(US) and plain X-rays were not significant. After consultation with surgery attendant, intestinal intussusception is suggested with consideration of radiography evident and barium enema carried out for patient. While barium enema showed mechanical obstruction, the patient underwent laparotomy via lower midline incision considering intussusceptions. The appendix was perforated and appendicular abscess mimicking intestinal obstruction was detected.

**Conclusion:** It seems that appendicitis must be kept in the differential diagnosis of any child who presents with abdominal pain. The child who has been sick for a week may well have a large appendiceal abscess walled off from the peritoneal cavity. In our case when the abscess began to leak into the free abdominal cavity, the child showed signs of extreme toxicity, oliguria, mottling of the skin, evidence of gram negative septicemia and a falling platelet.

Radiographs may show signs of paralytic ileus or even partial small bowel obstruction. This type of patient is most at risk for a disaster.

**Keywords:**perforated appendicitis, appendicular abscess, abdominal pain, children

### Evaluation of surgical management in 51 patients with fecal incontinence in three hospitals in Tehran

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**Background:** Fecal incontinence is a problematic issue in all societies. We can divide patients with fecal incontinence into two groups according to surgical management. Group one has normal and intact perineal body and anal sphincter, but abnormal innervations. Patients with myelomeningocele, cerebrospinal trauma, and mental retardation are in this group. In the other group, the perineal and anal sphincter have normal innervations, but the muscles are not intact. Patients with defect in anal sphincter or mislocation of the sphincter after anorectoplasty or trauma are in this group. We have to evaluate these patients with EMG, MRI, radiography, endoanal ultrasonography, muscle stimulator and providing sphincter mapping (especially in group two) for proper diagnosis and management.

The purpose of this study was to evaluate the long term results of surgical management and complications in patients with fecal incontinence that referred to the author.

**Methods:** It is a retrospective descriptive study on 51 patients with fecal incontinence in three hospitals in Tehran between May 1993 and February 2011.

**Findings:** Patients with abnormal pelvic innervations and normal anatomy underwent ACE (Antegrade Colonic Enema) procedure and were dry with 2-3 times a week enema through the appendicostomy. There were few complications like stomal stricture (in 3 patients) and prolapse (in 2 patients) that were corrected surgically. In 27 patients from 37 patients in group 2 with perineal and anal sphincter problems, which sphincter muscle defect and anorectal displacement after anorectoplasty for ARM were the causes of fecal incontinence, six patients had abdominal pullthrough and the other 21 had postero sagittal anorectoplasty (PSARP). The other causes of fecal incontinence were: anterior anus (3 patients), megarectosigmoid (2 patients), rectal prolapsed (2 patients), severe anal stenosis (1 patient), perineal trauma (1 patient) and cloacal anomaly (1patient).

After careful evaluation with Barium Enema, EMG, MRI, radiography, endoanal ultrasonography, muscle stimulator and anal sphincter mapping, according to the results, different surgical procedures such as re-do anorectoplasty, anal sphincter repair, anorectal reposition or megarectosigmoid resection performed. In partial rectal mislocation, the most defects were at 6 and 12 o'clock in litotomy position. After the corrective operations, 27 patients had complete continence. Nine patients had soiling (1-2 times a week) and in one of the patients because of non efficient anal sphincter, ACE procedure performed.

**Conclusion:** Most of the pediatric fecal incontinences are controllable. As sphincter defects after anorectoplasty were in 6 and 12 o'clock, specific attention to this issue require during primary anorectoplasty in ARM.

**Key words:** fecal incontinences, anal sphincter defect, anal mislocation megarectosigmoid, sphincteroplasty, ACE procedure

### Evaluation of surgery causes in neonates born in Milad Hospital, 2008-2010

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**Background:** 4 million neonatal deaths reports annually throughout the world. One of the steps that can cause to increase the amount of the survival rate of the newborns is identifying the early cases needed surgery and corrected surgery. Congenital anomalies & emergency surgery are among the many different diseases needing surgery. Different reasons for surgery in infants in different countries needed to be identified. This study was performed to determine the surgery causes in neonates born in Milad Hospital from 2008 to 2010.

**Methods:** This study was performed as an observational descriptive-analytical cross-sectional survey among 97 neonates born in Milad Hospital from 2008 to 2010. Their data were collected by a checklist.

**Findings:** The most common causes of neonatal surgery were esophageal atresia (16.5%), gastrochisis (16.5%), diaphragmatic hernia (12.5%), imperforated anus (12.5%), and omphalocele (12.5%). There was a statistically significant association between sex and weight of newborns with cause of surgery among them ( $P < 0.001$ ). Esophageal atresia and Diaphragmatic hernia have higher prevalence in the females and Hydrocephalus and Bowel atresia have higher prevalence in the males. Testicular torsion has higher prevalence in LGA neonates and Esophageal atresia has higher prevalence in SGA neonates.

**Conclusion:** Totally, according to the obtained results and similar studies, it may be concluded that the most common causes of need to surgery in neonates are gastrointestinal etiologies.

**Keywords:** surgery, neonates, LGA, SGA

### Gastro-intestinal emergency in children

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**Background:** Acute abdominal pain is a common health problem in children. The etiologies and clinical symptoms are variable and numerous and depend on the age of pediatric patient.

**Clinical signs and symptoms:** Clinical diagnosis is usually based on accurate history, physical and laboratory findings. In addition to a painful abdomen, vomiting (bilious or non-bilious) is also a frequent clinical sign. A distended abdomen, fever, diarrhea, melena, fresh blood per rectum, and constipation are all symptoms that should be taken into account in the differential diagnosis of acute abdomen.

**Diagnostic imaging:** Imaging usually starts with an abdominal plain film in supine and lateral view (decubitus film). This should provide the answer of pathological gas distribution in small and large bowel, air fluid level, pneumoperitoneum or abnormal shadows (tumor or calcifications). Ultrasound is an extremely useful modality

for evaluation of acute abdominal pain, confirming the clinical diagnosis and management. Inflammatory changes, free fluid, peristaltic activity and bowel wall thickening can be recognized easily. In addition, ultrasound is helpful in visualization of cystic or solid masses. CT is an additional technique to ultrasound and is valuable in specific circumstances, especially in more complicated surgical cases. MRI is rarely required as a primary imaging modality in acute abdomen, but may be helpful in diagnosis of inflammatory bowel disease (M. Crohn). Nuclear scanning is indicated in detection of Meckels diverticulum in patient with fresh blood per rectum. Contrast studies of the gastro-intestinal tract should be avoided in an acute abdominal disorder, especially the use of barium should be avoided. In exceptional cases the study can be performed with non-ionic water soluble medium.

The clinical symptoms together with imaging determine whether the acute abdominal pain is due to a surgically or medically treated disease. The most frequent surgically treated causes of acute abdomen are appendicitis, intussusception, perforation of bowels and small bowel obstruction.

The non-surgical diseases of gastro-intestinal tract include gastro-enteritis, Crohn's disease, ulcerating colitis, Henoch-Schönlein purpura, mesenteric adenitis, peritonitis, constipation and paralytic ileus.

Other pediatric emergencies, including neonatal gastro-intestinal pathology, abnormalities of the genitourinary and biliopancreatic systems, extra-abdominal and systemic conditions with abdominal pain are excluded from this subject.

**Keywords:** Acute abdomen, Abdominal pain, Imaging study, emergency

### Permanent iatrogenic penile skin impairment in circumcised boys; an objective evaluation of cosmetic appearance in 95 boys

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**Background:** The precise amount of foreskin to be removed in circumcision has not been defined in medical literature. There continues to be considerable variation in opinion as to what constitutes an "adequate" or "normal" circumcision. In addition to compelling evidence of preventive health benefits, circumcision is considered to be a cosmetic procedure. Penile skin impairment not only leads to unsightly genitalia, but it also potentially affects the quality of sexual intercourse. The aim of this study is to assess the appearance of penis in circumcised boys.

**Methods:** In this study, we assessed 95 circumcised boys who were admitted for a visit or a procedure due to various surgical conditions unrelated to genitalia organs. Our criterion for a proper circumcision is to remove sufficient foreskin in order to expose the glans whilst penile shaft skin is preserved, as performed using the standard Sleeve Resection (SR) technique. In this technique, the first incision is made on mucosa 5-8 mm proximal to the corona and the second incision is made on the shaft skin just at the level of the corona while the foreskin is retracted and the tip of glans is exposed. We compared the amount of penile skin retained after circumcision in our 95 patients against the recommendations of the SR technique. We then categorized our patients into three groups: 1) severe skin

loss (unacceptable), 2) moderate skin loss (questionable), and 3) acceptable.

**Findings:** A total of 95 circumcised boys were included in this study. 37 cases (39%) fall into the first category, i.e. they had severe skin loss. 39 cases (41%) fall into the second category, i.e. they had moderate skin loss. 18 cases (19%) fall into the third category, i.e. they were acceptable. The mean age of the boys at the time of circumcision was six months. All circumcisions were performed by one of the following practitioners: a family physician, a pediatrician, obstetrician, general surgeon, a pediatric surgeon, or a thoracic surgeon. We found that 79 (83%) of the circumcisions were performed by plastibell and 16 (17%) were performed by surgery. 45 (47%) of the circumcisions were performed as out-patients, and the remaining 50 (53%) were performed in the hospital using local anesthesia.

**Conclusion:** Iatrogenic permanent penile skin impairment in circumcised boys is a common condition. The procedure is often performed by inexperienced or poorly trained practitioners. The assumption that the foreskin is unimportant has led to the lack of proper understanding of potential complications of the circumcision. A significant number of revisions are performed in centers where neonatal circumcision is practiced. It is fair to assume that a great number of men in categories (1) and (2) above will suffer from poor cosmetic penile appearance and function throughout their entire life. **Keywords:** circumcision, skin loss, cosmetic appearance

### Primary endobronchial tumors in children

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**Background:** Primary endobronchial tumors are rarely seen in the pediatric age group. In the literature, they are typically presented as isolated case reports and little attention is given to these tumors in medical and surgical pediatric texts. The most commonly reported bronchial tumor is carcinoid, then mucoepidermoid carcinoma. Intrabronchial inflammatory pseudotumors have also been along with the above. In addition to these, and more rarely, bronchogenic carcinoma and adenoid cystic carcinoma are reported in the literature as well. The clinical symptoms of these bronchial tumors are chronic cough, wheezing, recurrence of pneumonia, atelectasis, poor response to respiratory infection, chest pain, and hemoptysis. In the differential diagnoses of the above symptoms, the possibility of considering endobronchial tumors are quite often unsought for, because of their extreme rarity; hence, resulting in a long delay in the discovery of these bronchial tumors.

**Findings:** In my private practice, I have encountered several cases of endobronchial tumors in children, all with delayed diagnoses. They were managed with surgical resection and the surgical findings, pathology, and prognosis have been consistent with the reported cases in the literature, which are the following: 1.) bronchial carcinoid tumors reported in children have been of the typical category and carries a good prognosis after surgical resection, and 2.) the mucoepidermoid carcinomas reported in children have been of low potential malignancy, having excellent prognosis after resection.

**Conclusion:** Primary endobronchial tumors in children, although rarely seen, should be considered in the differential diagnosis in children exhibiting the above-mentioned symptoms. Treatment with resection of tumors

has shown to have an excellent prognosis. Today, with the availability of advance imaging techniques and also more aggressive consideration of diagnostic bronchoscopy in children, endobronchial tumors in children could be diagnosed at an earlier stage, resulting in greater lung preservation.

**Keywords:** bronchial tumors, lung tumors, children

### Comparison between the theoretical knowledge & practical efficacy of general practitioners about cardiopulmonary resuscitation

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**Background:** Cardiopulmonary arrests are the most significant cause of urgent referring of patients to the hospitals. More than 1200 cases of cardiopulmonary resuscitation are handled per day in all hospitals throughout the country, so the physicians must have both theoretical knowledge and enough practical skills for managing of the patients. This study was done in order to investigate and determine these factors in newly graduated general practitioners.

**Methods:** This was a cross sectional study on 50 newly graduated general practitioners in 2010 in Mashhad. Their demographic properties were recorded and some questionnaires were filled for evaluation of their theoretical knowledge. Then an advanced cardiopulmonary resuscitation test with the method of simulation was done for evaluation of their practical skills by means of professional resuscitation maquettes. For evaluation of the practical test results, scoring was simultaneously done by three referees. Data analysis was done by SPSS software using Chi square test and independent T test and P value less than 0.05 was considered significant.

**Findings:** In this group, 62% were females and 38% were males, total mean theoretical score was  $38/4 \pm 10/2$  from 100. Just 2% of this group could acquire passing score; mean theoretical score of ventilation managing was  $33/6 \pm 17/5$ , of circulation managing was  $43/8 \pm 13/5$  and in defibrillation managing was  $35/3 \pm 21/2$ . Only 10% of physicians could get the total passing score. There was a meaningful difference between the mean theoretical score of two groups with and without enough resuscitation skill ( $p=0/02$ ) and it was higher in the first one (47/9); although overall resuscitation skill was not meaningfully different in both genders ( $p>0/05$ ) the circulation management skill in males was meaningfully more than females ( $p=0/02$ ).

**Conclusion:** On the basis of low mean theoretical scores of physicians and their knowledge and also because of unacceptable few numbers of people with enough practical skill of resuscitation, we suggest that besides rechecking and renewing of the theoretical academic instructions, more practical methods by means of real simulation in resuscitation panels must be held so that the theoretical knowledge and practical efficacy of cardiopulmonary resuscitation get upgraded.

**Keywords:** cardiopulmonary resuscitation, physicians, practical efficacy, theoretical knowledge

## Young Researchers Abstracts

### Frequency, clinical characteristics, season and age distribution of rotavirus gastroenteritis in the south of Iran

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**Background:** Rotavirus is the leading cause of acute gastroenteritis and death among young children worldwide. A cross sectional-descriptive study was conducted (2005-2009) in four Pediatric Hospitals to monitor the disease burden, the clinical characteristics, season and age distribution of rotavirus infection in Shiraz, Marvdasht, Jahrom and Borazjan in south of Iran.

**Methods:** Overall, 788 fecal samples were collected from children aged <5 years old with diarrhoea admitted to hospitals in cities mentioned above. All the stool specimens were examined for the presence of group A rotavirus antigen by Enzyme Immunoassay (EIA).

**Finding:** Out of the total collected samples, the median detection rate of group A rotavirus was 31.85% (range, 25.43%-46.01%). According to age distribution, 72.91% (183/251 cases) of the rotavirus episodes occurred during the first 2 years of life. The highest prevalence of the virus isolation was observed in autumn (39.44%) followed by winter (35.06%), summer (14.34%) and spring (11.55%), respectively. Among the clinical characteristics of the rotavirus-infected patients, diarrhea (96.68%) was the most frequent and other identified symptoms included vomiting (71.56%), fever (57.82%), and convulsion (5.69%) respectively.

**Conclusions:** Because of the high frequency of rotavirus infection, it is important to continue rotavirus surveillance in the other Iran regions to determine accurately the burden of rotavirus disease and the regarding immunization strategies.

**Keywords:** hospital surveillance, rotavirus, gastroenteritis, epidemiology, EIA

### Changes in Protein- Energy Status of hospitalized children during their stay at Mofid Children's Hospital, Tehran, Iran

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**Background:** Malnutrition is a common finding in hospitalized children and leads to increased mortality, mental and physical growth retardation and increased costs. The aim of the present study was to assess the nutritional

status of the pediatric patients on admission and discharge and some relevant factors.

**Methods:** 224 children (2-6 years old) who were consecutively admitted to Mofid children's hospital underwent objective and subjective assessments on admission and discharge. Objective assessments consisted of weight, height, mid upper arm circumference and triceps skinfold thickness measurements plus determining the energy and macronutrients intake and plasma albumin and prealbumin. Subjective assessments were done using Subjective Global Nutritional Assessment tool. Statistical analysis of the data was done using Paired T Test, Repeated Measures Analysis of Variance, simple T Test, One-Way ANNOVA, Wilcoxon Test and Correlation test.

**Findings:** According to objective (weight for height) and subjective methods, the prevalence of malnutrition on admission was 44.3% and 58.9% respectively. During hospital stay, the mean amount of all anthropometric parameters decreased significantly. This reduction was significantly greater in feverish patients, patients with normal baseline nutritional status and surgery patients. The mean energy, carbohydrate and fat intake, in spite of increasing during hospital stay, were below the recommended intakes (DRI). The mean energy, protein and fat intake were significantly related with patient's satisfaction with hospital food service. The mean plasma albumin and prealbumin concentrations were also below the normal ranges on admission and discharge. Malnutrition was diagnosed by physician only in 6.95% of patients affected and only 0.9% of children were referred to a dietitian.

**Conclusion:** The prevalence of malnutrition is high among hospitalized children and the nutritional status of them deteriorates during their stay. The situation may be improved by using appropriate screening tools with giving special attention to surgery patients, considering the patients at risk of malnutrition for in time interventions and enhancing the hospital food service quality.

**Keywords:** malnutrition, subjective, objective, children, hospitalized

### Situation, event lymphadenitis complications caused by the B.C.G vaccine in Gonabad city's children during the past 3 years

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**Background:** Adverse immunization including the impact of immunization which typically occurs in various forms: the stimulation of the immune system by biological materials in the vaccines, such as fever, swelling and redness area the vaccination, lymphadenitis, or swollen lymph nodes under the arm and etc. The purpose of this study was evaluating the B.C.G vaccine quality, vaccine storage conditions and the appropriate dose of vaccine injected by vaccinators in Gonabad city's hospitals with complication rates of occurrence of lymphadenitis in order to prevent that from occurring with appropriate measures.

**Methods:** This study was a retrospective descriptive study. The necessary information, to get to the point, collected in Gonabad city's health units in the years 2008-2010 and the

completed forms of vaccines were analyzed with principles of medical ethics. The complete quality of the vaccine and the vaccinator (injected 0.05 cc subcutaneous injection) as well as the storage of B.C.G vaccines and all the external factors that might be involved in the incidence of lymphadenitis were also under consideration.

**Findings:** The total number of 194 adverse vaccines reported during the past 3 years, which 55 cases had lymphadenitis and 5910 infants were vaccinated with B.C.G vaccine. Of the total number of lymphadenitis %63.6 were males and %36.4 were females. The number of rural and urban cases were %54.5 and %45.5 respectively. %74.5 was referred within 5 days to 5 months of vaccination and %21.8 within 6 months to a year or more than one year of vaccination. Also, there was no significant difference between months of this complication.

**Conclusion:** It seems the rate of lymphadenitis in these years has exceeded the rate defined in references (1000 cases in 1000000 doses vaccination), and needed more comprehensive study done on the healthy of the vaccines, the rate of reaction, the immune system of the children receiving the vaccine, the adverse effect occurring in them and compares them with the children in whom this complication has not occurred.

**Keywords:** immunization, lymphadenitis, children, B.C.G vaccine

### Rapid palatal expansion to treat monosymptomatic nocturnal enuresis: a systematic review and patient level meta-analysis

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**Background:** To determine the effect of rapid palatal expansion (RPE) to treat nocturnal urinary incontinent children and to assess the effect of age, gender, craniofacial dentoskeletal morphology, emotional disturbance and upper airway obstruction (snoring, sleep apnea or sleeping with open mouth) on treatment outcome.

**Methods:** A Comprehensive search of electronic data bases of Medline (since 1950 including old Pubmed) and Cochrane central registry of controlled trial through June 2011 supplemented by reviewing conference abstracts from Gateway performed. Search strategy was the keywords of “enuresis” and “palatal expansion”. The search included original articles and review articles relevant to our aim. Review performed by two others and decision was made after final agreement in the case of disagreement between authors. Survival analysis accomplished with the Kaplan-Meier analysis. A Cox-regression model was also built with forward conditional method to investigate the predictors of outcome.

**Findings:** Five articles were found and 4 original interventional articles were relevant. From 51 investigated children, 21 were males, 7 were females and 23 were unknown of gender. Mean age was 122 ( $\pm 27.73$ ) months. Frequency of bedwetting was 4.9 days/week. Twenty

children became completely dry, 15 individuals were partially dry and 16 did not respond to the treatment after 12 months follow up. The average rate of complete or partial dryness after 1 year was 29%. Twenty five children had normal class I, 23 had class II and 3 had class III molar occlusion. Cross bite was present in 14 children. Mean time to complete or partial improvement was 7.83 months (CI 95% 6.18-9.48). Presence of posterior cross bite (B: -1.06, Exp (b): 0.344 CI 95%: 0.16-0.73,  $p=0.006$ ) and signs of upper respiratory obstruction during sleep (B: 0.811, Exp (b): 2.25 CI 95%: 1.05-4.82,  $P=0.037$ ) significantly predicted the outcome (time to improvement). Other predictors did not significantly estimate the outcome after simultaneous adjustment ( $p>0.05$ ).

**Conclusion:** This study, the first meta analysis of treatment effect of RPE, supports the use of posterior palatal expansion to treat enuresis especially when the patient had posterior cross bite. According to the annual rate of 15% spontaneous resolution, a 29 % recovery yields that rapid palatal expansion may be applied when other treatment modalities are failed as a safe and relative low cost alternative.

**Keywords:** enuresis, cross bite, snoring, meta analysis, palatal expansion

### Neonatal urinary tract infections' clinical response to empirical sepsis therapy versus in vitro susceptibility

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**Background:** Neonatal UTI is usually treated with a combination of ampicillin and an aminoglycoside or a third-generation cephalosporin. Recently, growing number of E-coli resistant to ampicillin and aminoglycosides have raised concerns regarding the necessity to change the empirical sepsis therapy. To tackle this dilemma we motivated to firstly assess neonatal UTI clinical response to the prevalent empirical sepsis therapy.

**Methods:** Study was designed as a case series. Those with diagnosis of UTI on basis of a bladder aspirate or catheterized urine specimen whom admitted to Bahrami Children Hospital neonatal ward in 2001- 2010 period were surveyed on a simple non-random sampling method. Clinical unresponsiveness defined as necessity to alter antibiotic regimen in the first 48 hours due to lack of response (i.e., reduce in patient fever, improve in neonatal reflexes, feeding, and restlessness, control of vomiting and other symptoms of neonatal septicemia) and or deterioration of patient status, or positive urine culture after the first 48 hour of therapy.

**Findings:** Totally, 97 cases (including 83 term, 8 post term, and 6 preterm neonates) with a mean age of  $15.85 \pm 7.05$  days and average weight  $3276.29 \pm 599.182g$  (versus  $3195.57 \pm 553.009 g$  at birth) on hospitalization were included in the study. Ampicillin resistance in 93 cases (95.9%), Gentamicin resistance in 51 cases (52.6%) and Trimethoprim-Sulfafurazole resistance in 44 cases (45.4%) were the leading patterns of resistance in the study. E-Coli, the most prevalent (76.3%) isolated organism was resistance to Ampicillin in 95.9% (71 cases). However, 81.4% neonates (79 cases) responded to the empirical therapy. This might simply be justified by the response to the other antibiotics used in the empirical therapy. On further analyze of issue, we surprisingly observed clinical

unresponsiveness in 4 cases (4.1%) despite in vitro susceptibility to both used antibiotics. On the other hand, 16 cases (16.5%) showed clinical response spite of insusceptibility to both antibiotics.

**Conclusion:** Regardless of the study observed clinical response, we believe till conductance of more detailed study regarding the issue, physicians should take ampicillin-resistant issue into accounts from the first steps of management of neonatal UTI.

**Keywords:** urinary tract infections, neonatal sepsis, antibiotic resistance

### **Nonalcoholic fatty liver disease, Carotid intima-media thickness and lipid profile in epileptic children**

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**Background:** Sodium valproate and carbamazepine are among frequent medications utilized for seizure control in children. Several adverse effects such as fatty liver disease, lipid profile changes and increased Intima-Media Thickness (IMT) are reported among cases who are treated with these medications.

**Methods:** Here we assessed thirty eight children (under 18) who were treated by sodium valproate and carbamazepine for at least six months for developing adverse effects including fatty liver disease, lipid profile changes and increased Intima-Media Thickness. Cases who were treated with two or more antiepileptic-drugs or treated less than six months with each of drugs were excluded. Fasting venous blood sample drawn and radiologic evaluation of liver and both carotid arteries by two independent individuals performed.

**Findings:** We found fatty liver disease in five patients who were treated with sodium valproate and lower white blood cell (WBC) count in carbamazepine group. Lipid profiles and Intima-Media Thickness (IMT) of both carotid arteries were not significantly different between groups.

**Conclusion:** In conclusion, children who are treated with sodium valproate would be better to be carefully assessed by sonographic modalities for developing fatty liver as an adverse effect of the drug.

**Keywords:** epilepsy, sodium valproate, carbamazepine

### **Prevalence of convulsion in asthmatic children**

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**Background:** Asthma and convulsion are the two most common diseases in childhood specially in younger than 6 year old children. Several causes of convulsion such as electrolyte imbalances and hypoxia are seen in asthmatic children. So, we sough that if the prevalence of convulsion increased in asthmatic children in compare with normal pediatric population. In this study our purpose was comparing the prevalence of convulsion in asthmatic children and normal pediatric population.

**Methods:** In this retrospective cross-sectional study we reviewed all medical records of younger than 6 year old children who admitted with final diagnosis of asthma attack

in shiraz shahid dastgheib hospital from 2001 to 2010. The statistical analyses performed with SPSS software version 18.

**Findings:** There were 212 children included 146 boys (68.9%) and 66 (21.1%) with final diagnosis of asthma attack. At all 13 patients (6.1%) included 9 boys and 4 girls had febrile convulsion and 8 patients (3.8%) included 7 boys and 1 girls were known cases of epilepsy in their medical history. In compare with 3% and 1% prevalence of febrile convulsion and epilepsy in normal pediatric population respectively, both febrile convulsion and epilepsy had statistically significant more prevalence in asthmatic children (P=0.01 and P=0.001 respectively). Similar to normal pediatric population, both these convulsions were more prevalent in boys patients.

**Conclusion:** Chronic electrolyte imbalances and hypoxia due to perfusion-ventilation mismatch in asthmatic children can decrease threshold of convulsion in these children. Therefore prevalence of convulsion can increase in asthmatic children.

**Keywords:** convulsion, asthmatic children, epilepsy

### **Cognitive flexibility associated with autism sociability and level of education in children with ASD**

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**Background:** Studies examined cognitive flexibility in individuals with autism spectrum disorders (ASD) found deficits in high-functioning adults as well as children. The aim of this study was to evaluate cognitive flexibility as shift attention assessment in autistic students and examine the most likely correlations.

**Methods:** A group included 91 autistic children (aged 7-14) from all autism-specific schools of Tehran were assigned to the study. We administered the Wisconsin Card sorting test (WCST-64) to all subjects at their Schools and at the same conditions. The main variables of WCST included perseverative errors and completed categories. Further, autism core deficits as language, sociability, sensory and behavior scores were evaluated by ATEC and Vineland questionnaires. Correlations concerning the description of the link between WCST variables and other metric measures were determined according to Pearson.

**Findings:** Descriptive findings showed that children completed in average  $0.9 \pm 0.8$  categories and they scored  $14.1 \pm 9.6$  on perseverative errors as the main variables of WCST. Perseverative errors were positively correlated with language deficit scores ( $r=0.33$ ,  $p<0.01$ ) and negatively with level of education ( $r=-0.35$ ,  $p=0.002$ ), social age ( $r=-0.44$ ,  $p=0.001$ ) and social quotient ( $r=0.3$ ,  $p=0.02$ ). Level of education ( $r=0.43$ ,  $p<0.001$ ), social age ( $r=0.35$ ,  $p=0.007$ ) and social quotient ( $r=0.34$ ,  $p=0.01$ ) were positively correlated with completed categories however language deficit scores ( $r=-0.33$ ,  $p<0.01$ ) were inversely correlated with.

**Conclusion:** Findings showed strong correlations between cognitive flexibility with level of education and autism severity scores in children with ASD. Our study might continue debate on executive dysfunction as a core deficit in Autism.

**Keywords:** cognitive flexibility, sociability, language deficits, executive dysfunction, WCST and autism

## Sleep profile in children with Autism Spectrum Disorders; an accelerometer study

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**Background:** Autism spectrum disorders (ASDs) were estimated to have average prevalence of 1 in 110 children in US. Different studies have shown that these children are suffering from more sleep problems than normal children. In this study we aimed to assess sleep characteristics of children with high function autism in a community based sample and find out the relation that may exist between different cognitive function, life habits and sleep traits.

**Methods:** In this study we used actigraphy device for objective sleep assessment and sleep diaries for recording of in bed and out bed time over a 7 day period. Parents were asked to provide information about demographic, medical and cognitive-behavioral profiles of children with ASD.

**Findings:** Eighty six children with ASD were included in this study. As actigraphy data showed 10.5 percent of children were poor sleeper. Sleep latency and sleep efficiency were significantly ( $p < 0.0001$ ) lower and wake minutes were significantly ( $p < 0.0001$ ) higher in this group than children in good sleeper group. Analysis for level of father education showed children of father with higher education had higher wake minutes ( $p < 0.04$ ) and lower sleep efficiency ( $p < 0.09$ ). Sleep minutes were correlated with sensory cognitive awareness deficit ( $r = 0.236$ ,  $p = 0.035$ ). Behavioral deficit and number of awakening ( $r = 0.246$ ,  $p = 0.028$ ) were correlated significantly. Analysis for sedentary activities (TV and computer time) indicated a marginal inverse correlation between sleep minutes and times they spent on TV watching ( $r = -0.253$ ,  $p = 0.08$ ).

**Conclusion:** The results show the characteristics of sleep problems in a sample of ASD pupils in Iran and the association of sleep problems on different cognitive-behavioral scores. It is suggested that sleep assessment could be considered as a part of clinical profile making in children with ASD.

**Keywords:** autism, actigraphy, community based sample, sleep

## Viewpoint of health personnel on the attitude and beliefs of public about Kangaroo Mother Care in Tehran – A Qualitative study

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**Background:** Kangaroo mother care (KMC) is an alternative to the conventional incubator and bassinet care of certain stable low-birth weight infants. Kangaroo mother care is effective for neonatal needs (Warm, breast feeding, immunity ...). This research was conducted to study health staffs' view about beliefs of public about KMC.

**Methods:** A qualitative study (in focused group discussion form [FGD]) was conducted based on a purposeful sampling and using the semi structure guide interview in an academic Hospital in Tehran in 2007. The study population was divided into two strata; doctors and nurses (who

worked in neonatal wards). Interview with physicians group (8-member) and nurses groups (2 groups: 5 and 6-member) were done in three 2-hour interviews. A moderator and an assistant moderator were present in the meetings. Data analysis was performed using content analysis after coding data.

**Findings:** The themes extracted from discussions showed that the subjects believed that the wrong beliefs majorly are "all LBWS need to remain in neonatal intensive care unit (NICU) until they are in full growth and desirable weight" and even some mothers try to find a hospital which is equipped with NICU. Another wrong beliefs is that the main cause of infant crying is hunger and they did not announce emotional need, love and embracing for crying. The other wrong belief is that children need more care at home in hospital and newborns doesn't need mothers to stay at hospital. People fear very small size of an immature newborn and think they cannot be embraced. Another wrong belief in some regions is that mother is guilty for immature neonate. Correct beliefs consist "Fathers' positive attitude towards the program is so important." Other family members and especially fathers' participation in the program helps the program to promote. The subjects conveyed that people believed resting days with salary for fathers in newborn immature birth time is useful, giving them possibility to cooperate in the care program. People believed education by health personnel and media has very important role in parent acceptance.

**Conclusion:** Face to face KMC education by medical personnel for parents in the wards, books and pamphlets, introduction of related websites, published scientific articles in magazines and newspapers and show films in media can create right beliefs about KMC in public. Entering the program in university textbooks is also useful.

**Keywords:** KMC, NICU, public, beliefs

## Comparing comprehension of complex structures between children with hearing impairment and normal Children

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**Background:** Hearing Impairment during childhood affects all aspects of speech production and comprehension. It seems that hearing impaired people suffer from language and speech impairments such as comprehension of structures derived by syntactic movement. The purpose of this study is to compare the comprehension of structures derived by syntactic movement in children with hearing impairment and normal children.

**Methods:** In this case-control research, twenty normal children aged 6-7 years and twenty children with severe to profound hearing impairment aged 8-12 years were selected in a simple random sampling from normal kindergartens and schools and exceptional schools for hearing impaired people. The children didn't have any confirmed diseases or neurological disorders except hearing loss in students with hearing impairment. The children's aural records and also the confirmation of the audiologist in the

exceptional schools for hearing impaired people were considered in order to determine the kind and degree of hearing loss. The comprehension of sentences was tested by using a researcher-made task called sentence-picture matching task. At first the content validity was determined and then the reliability was confirmed with Cronbach Alpha Test. Data were analyzed by statistical test such as Independent Samples T-Test and Mann-Whitney U Test and using SPSS software.

**Findings:** Comprehension of the hearing-impaired group was significantly different from that of the hearing control group ( $P < 0/05$ ). The children with hearing impairment failed to understand structures derived by syntactic movement. Comprehension of the hearing-impaired group on structures with canonical word order was better than on structures derived by syntactic movement.

**Conclusion:** Incorrect answers of the children with hearing impairment to the sentence - picture matching task allude to the incomplete comprehension of hearing impaired children on complex and non-canonical structures. These results imply the necessity of early detection and early intervention of rehabilitation services in hearing impaired children.

**Key Words:** hearing impairment, comprehension, non-canonical structures, Persian speaking children

### **Performance on cambridge neuropsychological test automated battery subtests sensitive to frontal lobe function in people with autistic disorder (high functioning)**

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**Background:** Recent structural and functional imaging work as well as neuropathology and neuropsychology studies provide strong empirical support for the involvement of frontal cortex in autism. The Cambridge Neuropsychological Test Automated Battery (CANTAB) is a computer-administered set of neuropsychological tests developed to examine specific components of cognition. Previous studies document the role of frontal cortex in performance of two CANTAB subtests: the Stockings of Cambridge, a planning task, and the Intradimensional/Extradimensional Shift task, a measure of cognitive set shifting.

**Methods:** To examine the integrity of frontal functions, these subtests were administered to 15 participants with autism and 15 typical controls recruited from three clinics

and schools. The two groups were matched on age, sex, and full-scale IQ.

**Findings:** Significant group differences were found in performance on both subtests with the autism group showing deficits in planning efficiency and extradimensional shifting relative to controls. Deficits were found in individuals with autism across the age range of 6 to 12 years.

**Conclusion:** If these CANTAB subtests do indeed measure prefrontal function, as suggested by previous research with animals and lesion patients, this adds to the accumulating evidence of frontal involvement in autism and indicates that this brain region should remain an active area of investigation. These findings do help to have a more accurate diagnosis, too.

**Key Words:** autism, executive function, planning, set shifting, frontal lobes, CANTAB

### **Deficit of auditory temporal processing in children with dyslexic-dysgraphic**

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**Background:** Auditory temporal processing reveals an important aspect of auditory performance in which a deficit can prevent the child from speaking, language learning and reading. Temporal resolution, which is a subgroup of temporal processing, is evaluated with gap detection test. As phonologic disorder of dyslexic-dysgraphic children is related to auditory temporal processing deficits, the aim of this study was to evaluate these children with the gap in noise test.

**Methods:** The gap in noise test was performed on 28 normal and 24 dyslexic-dysgraphic children, at the age of 11-12 years old. Mean approximate threshold and percent of corrected answers were compared between two groups.

**Findings:** Mean approximate threshold and percent of corrected answers of the right and left ears had no difference between two groups ( $p > 0.05$ ). Mean approximate threshold of dyslexic-dysgraphic children, 6.97 ms, was significantly more than that of the normal group, 5.05 ms ( $p < 0.001$ ). Mean percent of corrected answers (58.05%) was less than normal group (69.97%) ( $p < 0.001$ ).

**Conclusion:** Abnormal temporal resolution was found in dyslexic-dysgraphic children based on gap in noise test. While the brainstem and auditory cortex are responsible for auditory temporal processing, probably the structural and functional differences of these areas in normal and dyslexic-dysgraphic children lead to abnormal coding of auditory temporal information. As a result, auditory temporal processing is inevitable.

**Keywords:** auditory temporal processing, gap in noise test (GIN), dyslexia, dysgraphia, learning disability (LD)

## Miscellaneous Abstracts

### Probiotics and Prebiotics: Immunological and Clinical Effects

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**Background:** The gastrointestinal tract is the primary and largest interface between the human body and its environment. As such, it is both the largest immune organ in the body and home to a complex microbial ecosystem. The intestinal microflora is a key factor influencing the health and wellbeing of the human host, particularly through modulation of its immune response. This microbial ecosystem is unique to each individual, changing throughout a person's lifetime in response to modifications in health, diet, and the environment. The administration of probiotics and/or prebiotics is an important field research. Probiotics and prebiotics, used alone or together (synbiotics), may influence the intestinal microflora and modulate immune responses in vitro and in vivo.

Probiotics are defined as nonpathogenic organisms in the food supply that are capable of conferring a health benefit to the host by modifying gut microbial ecology. Lactic acid producing bacteria, including Bifidobacteria and Lactobacilli, are the most widely used probiotic organisms and hence some of the most widely studied.

The growing body of scientific evidence continues to elucidate the potential benefits of consumption of live microorganisms generally referred to as "probiotics". By modifying the composition of the intestinal flora, and improving its "microbial balance", probiotics confer a benefit to the host, particularly via modulation of GALT immune responses. Probiotics are thus generally defined as those microorganisms in the food supply that are nonpathogenic and capable of conferring a health benefit to the host by various mechanisms. "Probiotics" literally means "for life". Common probiotic bacteria include species from the genera Lactobacilli and Bifidobacteria, the latter of which composes the predominant colonic flora of the breastfed infant. In addition, some yeasts (such as saccharomyces) have been described as having probiotic benefits. It is important to note that only strains of nonpathogenic bacteria that are shown to have a positive effect on the host can be considered probiotic agents. Not all non-pathogens are probiotics, nor do all probiotic strains have the same type of effect or mechanism of action on the host. When referring to probiotic benefits, the specific microorganism and its particular effects need to be specified. Prebiotics are generally defined as dietary substances (non digestible food ingredients) that promote the growth of beneficial gut flora, thus may indirectly support the probiotic effects of these organisms, but only when the organisms are available in the colon

Oligosaccharides are considered to be the most important prebiotic substrates. Short chain galacto-oligosaccharides (scGOS) and long chain fructo-oligosaccharides (IcFOS) are today worldwide the most used prebiotics

Validated clinical outcome measures assessing the effects of probiotic and/or prebiotic supplementation are needed.

The clinical effects and safety of 1 probiotic and / or prebiotic product should not be extrapolated to others

**Discussion:** The intestinal microflora, a multifarious ecosystem containing over 500 species of microorganisms, is vital to gut function and is essential for human health.

In nutritional point of view, the functions of the microflora comprise synthesis of micronutrients, fermentation of otherwise indigestible substances, and metabolism of proteins, peptides, and bile acids.

Bacterial colonization begins shortly after birth. In breastfed infants, Bifidobacteria species dominate in the GI tract. Caesarian section simply postpones colonization of Bifidobacteria. The composition of intestinal microflora changes with age while it can be modified by diet, use of antibiotics, and environmental changes. Maintaining the natural bacterial balance of the GI tract helps to minimize the presence of pathogenic microorganisms and limit their negative effects. Changes in intestinal microflora increase the risk of some diseases like diarrhea, allergy, inflammatory bowel disease, and necrotizing enterocolitis. A balanced intestinal flora helps a balanced immunologic response in the host by several mechanisms. These include an improvement of humoral immunity (such as increased IgA secretion for protection from pathogens) and modulation of the T cell response (by decreasing the pro-inflammatory responses which can lead to allergic and inflammatory conditions). Apart from systematic impacts, probiotics, also benefit the GI tract by some local effect like maintaining the gut barrier function. Lactic acid producing bacteria (LAB) (such as Bifidobacteria and Lactobacilli) are the most known and most utilized probiotics; they are the microorganisms which are widely used in food and beverages. Food and beverages containing LAB constitute up to 40% of the global food supply. LAB, used in the food supply, are considered nonpathogenic, nonvirulent, and nontoxic.

**Bifidobacteria:** Bifidobacteria species are part of the normal flora of the intestinal tract of both infants and adults, these species are the most common of all bacterial species that colonize the intestine of breastfed infants, compared to formula-fed infants, and are thought to be associated with some of the health benefits of breastfeeding. Bifidobacteria in general, and specifically *B. lactis*, are agents which survive GI digestion, reach the colon, inhabit the distal gut, produce short-chain fatty acids, and lower colonic pH; hence, they are uniquely suited as a probiotic agent for inclusion in the diets of infants. The safety of Bifidobacteria in general, and *B. lactis* specifically, has been well documented. Formulas supplemented with *B. lactis* have been marketed more than 15 years in more than 30 countries with an excellent safety record. To date, no serious adverse events have been reported in clinical trials. Multiple studies document various benefits with *B. lactis* in infants and children. These include:

- Modification of intestinal flora to a more desirable profile
- Improvement in gut barrier function and integrity
- Positive modulation of the immune response
- Potential clinical protective effects from conditions such as diarrhea and atopic disease

**Conclusion:** Probiotics are organisms that, when consumed in adequate amount, have a positive effect on the health of the host.

There is extensive literature supporting the functionality of probiotics and various potential clinical benefits have been reported. Studies indicate that probiotic effects occur locally by the promotion of the gut's physical barrier and systemically by modulation of the host's immune system. Bifidobacteria are uniquely appropriate probiotics for infants who are formula-fed because Bifidobacteria are the most common bacteria found in the flora of breastfed infants. *B. lactis* is one of the most widely studied Bifidobacteria; it has been safely fed to infants and shows potential probiotic benefits.

### The prevalence of frenum attachment and tied tongue among children aged between 4 and 16 (+6 months) who have midline diastema in Tehran city districts

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**Background:** Spacing of maxillary central incisor known as midline diastema is One of the disorders that causes problems in eruption of the teeth and will finally affect esthetic of the children. The aim of this study was to determine the prevalence of frenum attachment and tied tongue amongst children aged between 4 and 16 years (+6 month) who have midline diastema in Tehran city districts.

**Methods:** This survey was based on a cross sectional study. Some children were selected randomly from the schools of city of Tehran. An intra-oral examination was carried out using an abs long under artificial or natural Hat with the children lying on supine position. The presence of midline distema was noted and recorded. Examinations were continued until 114 children were found with distema only between central incisors. Then by examination and attraction of upper lip it was noticed the blanching of the tissue just lingual to the maxillary central incisor, Which is the sign of abnormal frenum. Also the location of the origin of the labial frenum was determined. (Muco gingival junction, attached gingiva, interdental papilla, penetrating to interdental papilla) and the situation tongue (tied tongue) was recorded. These data were analysed by statistical methods. Interaction analysis for testing the type and size of variables under consideration was performed by the ratio and scholastics independence with the confidence limit of 95% for the considered population. Pictorial and graphical data analysis is also presented.

**Findings:** Results show that 52/8% of children had abnormal frenum and 47/2% had normal frenum. The location of frenum attachments in all samples was 43/1% in attached gingiva, 36/6% in papilla penetrating, 10/6% in mucogingival junction and 9/8% in interdental papilla. Only two students (1/6%) had tied tongue. Age distribution shows that the most distribution of abnormal frenum had mean of 41/5% in 4 to 6 year old group, and 24/6% in 12 to 16 year old group.

**Conclusion:** About half of the population samples had abnormal frenum and the location of frenum attachment had co-relation with present or absents of abnormal frenum. In these population abnormal frenum had no relation with age groups. It was also found that almost all the population under consideration had no tied tongue.

**Keywords:** midline diastema, abnormal frenum, mucogingival junction, attached gingival, interdental papilla, penetrating to interdental papilla

### Screening tests

lotfalizadeh, jannatdost, Reyhanifar  
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**Background:** The purpose of Screening test is early detection, treatment of serious diseases and prevention of disability.

**Methods:** \*NST: Screening of newborn for 5 of the most common metabolic diseases in Iran including pku, G6pDd, Galactosemia, MSUD, TSH.

\*Metabolic disorders: Mass Spectrophotometry is mandatory for neuro developmental delayed children.

\*OAE: Hearing assessment of all neonates other than high risk babies, ABR for special state, Genetic assessment for deafness in a baby (cochlear implant).

\* PLUS Optic Amblyopia Screening of a child (6 months-preschool): the best, fast and easy method of a baby Amblyopia examination without need to eye drop and child cooperation. \*Pregnancy Screening test: full integrated Test, Genetic Counseling, PND (prenatal diagnosis), PCD (preconception diagnosis).

\*Special attention to new vaccination: Influenza, Haemophilus Ib, pneumococcus, Rotavirus.

\*Children diet warning to fast food disadvantage e.g metabolic syndrome, benefit of Mediterranean nutrition, probiotic products. \*Importance of omega-3 (pregnancy, breastfeeding mother, newborn), acid folic (prevention of fetal major malformation), rice or bread enrichment with Iron, zinc.

\*IQ test(WISC,WPPSI) of preschool (5-7 yrs) children to early detection of borderline M.R for effective rehabilitation program and future successful education.

\*Maternal Health clinic with special attention to the most common women(Breast) cancer screening, self examination, Genetic assessment(BRCA1,2Gene), carrier detection.

Finding: The most tests perform in Tabriz Behbood hospital since 2001 include:

\* NST is routine for newborn. Connexin26 and 30 other gene mutations were mostly seen in deaf babies.

\*Early, successful detection and treatment of primary or secondary amblyopia including retinoblastoma-induced cases is benefits of PLUS Optic Amblyopia test.

\*Trisomy 21 is the most common result in pregnancy screening by amniocentesis test.

\* Nutritional anemia and micronutrient deficiency (Iron,Zinc,D3) are common lab finding in clinic.

Preventive effect of folic acid in multifactor inheritance of major malformation syndromes, considerable importance of omega3 in fetus and newborn neurodevelopment, preventive effects of probiotics in osteoporosis, cancer, metabolic syndrome, AHDH, allergic and infective diseases and vitamin D3 deficiency related to Iranian women Multiple sclerosis incidence.

\*The most reasons for referral to genetic Counseling are confirmation of D.X of affected individuals, carrier identification, successful PND, and warning to consanguineous marriage. Effective prevention of all types of handicaps is protective benefits of Clinical Genetic Counseling.

**Conclusion:** The most important results of performing Screening, Preventive tests are decreasing of mortality, morbidity and handicaps as well as having a health, welfare society. Iame Sadegh says: spending 1 derham(dollar) for prevention is better than spending 1000 derham for Treatment.

**Keywords:** genetic counseling, screening test

**Pneumothorax and pneumomediastinum:  
“New etiological classification with an  
overview of clinical and radiological  
findings”**

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**Background:** Pneumothorax (PTX) is defined as the presence of gas in pleural cavity and pneumomediastinum (PM) is pathologically located gas in mediastinal space. Etiologically PTX and PM should be classified in 3 groups:

1. Primary idiopathic spontaneous PTX, usually resulting from rupture of pulmonary blebs. A primary spontaneous PM is thought to result from valsalva maneuver, coughing or vomiting.
2. Secondary spontaneous PTX and PM include the following subgroups:
  - A. Various congenital lung disorders (PTX only).
  - B. Conditions associated with intrathoracic pressure such as asthma (PTX and PM).
  - C. As complication of viral and bacterial lung infections (PTX and PM).
  - D. Diseases with diffuse pulmonary affection (PTX only).
  - E. Others.
3. Iatrogenic and traumatic causes.

**Clinical findings:**

Clinical signs and symptoms of PTX depend on its severity and patient condition. In cases with primary spontaneous PTX children complain of sudden onset of unilateral chest pain with or without dyspnea. In cases with secondary spontaneous pneumothorax and iatrogenic or traumatic causes more severe clinical symptoms are expected, such as cardiopulmonary distress, tachycardia, tachypnea with hypoxia and hypotension.

Typically symptoms of spontaneous PM are retrosternal chest pain during respiration, dyspnea and neck pain. In cases of secondary or iatrogenic PM the symptoms can be severe sore throat, coughing or vomiting and other clinical signs similar to PTX added by subcutaneous emphysema. Patients with both PTX and PM are not uncommon. Differentiation between these two entities is important from therapeutic point of view.

**Diagnostic imaging:** Plain film remains the gold standard for diagnosis of PTX and PM. The radiological sign of PTX is based on visualization of the visceral pleural margin with the absence of the lung vascular marking peripheral to the pleural line. The sensitivity of chest film in detection of PTX is around 80%. CT scan with a higher sensitivity and specificity is recommended in more severe and complicated cases, especially in thoracic trauma. Chest film is also the first modality of choice in recognition of PM. The characteristic sign of PM is displacement of mediastinal pleura due to pathological gas collection with elevation of thymus. In severely affected patients pneumopericardium, ring around the artery and subcutaneous emphysema are present. Obviously CT is a more sensitive modality, but should be used in more complicated cases, because of high radiation doses, especially in thoracic trauma, esophageal perforation and ingested foreign bodies. MRI is rarely indicated as a diagnostic approach of PTX or PM.

**Prevalence of overweight in children  
according to the socioeconomic status in  
Isfahan, Iran**

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**Background:** This study aimed to estimate the prevalence of overweight and obesity among children in two schools located in two areas with different socioeconomic status (SES) in Isfahan, Iran.

**Methods:** This survey was conducted in 2009-2010 educational year in two elementary schools. It comprised 195 children, aged 7-11 years, in school A from upper SES area (charbagh St.), and 544 children in school B from lower SES (Zeinabeeyeh). Body weight was measured in minimum clothing to the nearest 0.1 Kg and height was measured in the erect position without shoes to the nearest 0.1 cm using stadiometer. Body mass index (BMI) was categorized according to the reference curves of the Center for Disease Control & Prevention (CDC), those with BMI equal or above 95th percentile were considered as obese and BMI between 85-94th percentile was considered as overweight.

**Findings:** In school A, 9.5% of girls were obese and 13.69% were overweight; the corresponding figures for boys were 7.5% and 11%, respectively. In school B, 3.16% of girls and 6% of boys were obese and 7.1% of girls and 7% of boys were overweight.

**Conclusion:** The findings of this study suggest that in our community, overweight and obesity are no more limited to high SES families. This emerging type of weight disorder needs to be considered as a health priority for the children in our community.

**Keywords:** overweight, obesity, socioeconomic status, Iran

**Treatment of dental defect in ectodermal  
dysplasia**

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**Background:** Ectodermal dysplasia syndrome was first described by Thurman in 1848. Patients have abnormalities of the glands, tooth buds, hair follicles, and nail development. Patients with ectodermal dysplasia generally have prominent supraorbital ridges, frontal bossing, and a saddle nose. The maxillae may be underdeveloped and the lips are thick and prominent. The characteristic dental defect in this syndrome is peg-shaped or conical front teeth. Anodontia may occur, but hypodontia with misshapen teeth is usual, and these teeth may be hypoplastic.

**Methods:** This literature is based on a review of the current dental and medical literature related to heritable dental developmental anomalies.

**Findings:** Prosthodontic rehabilitation can be accomplished with fixed, overdenture, complete, or implant-retained prostheses. For rehabilitation, it is crucial to know the age, number and condition of present teeth, and the state of growth of the patient. That is commonly a difficult condition to manage the patients with prosthodontics

because of the typical oral deficiencies and because the afflicted individuals are quite young when they are evaluated for treatment. It is important that these individuals receive dental treatment at an early age for physiologic and psychosocial reasons. A removable partial denture or an overdenture is often a suitable treatment choice, because of the need to easily modify the intraoral prosthesis during rapid growth periods. Also orthodontic treatment may be needed to align the teeth in to acceptable positions. Osseo-integrated implants are an alternative treatment in older people.

**Conclusion:** Early and extensive dental treatment is needed throughout childhood because of the absence of most of the deciduous and permanent dentition. A multidisciplinary team approach to management of these patients is recommended.

**Keywords:** ectodermal dysplasia, dental treatment

### The prevalence and causes of child mortality rate in Khuzestan

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**Background:** One of the most important indicators of health and development in every country is the child mortality rate or under-5 mortality rate. Upgrading this index needs to know the important causes of death in children and plan for them.

**Methods:** This study is conducted retrospectively in Khuzestan province. Data of all deaths of children younger than 5 years were gathered from Khuzestan's health deputy (Jan2009-Jan2010). Neonates were excluded from our study. There were 598 documents filled out completely out of 636 deaths which were recorded. Different variables were studied and analyzed through SPSS16.0. It should be noticed that the diseases of the children was classified according to ICD10.

**Findings:** The mean age in our included cases was  $15.2 \pm 14.8$  months and 55.3% were boys. Fifty four percent of patients were lived in cities, 60% were 12 months or younger and 57% of deaths occurred in hospital. One third of mothers were illiterate. The most frequent causes of mortality were: incidents (22%), congenital and chromosomal diseases (16.8%) and respiratory system diseases (14.1%). The most common causes among incidents were car crashes (39.5%), drowning (19.3%) and upper airway obstruction (10.9%) and among congenital diseases were congenital malformations of the circulatory system (30.8%), and congenital nervous system malformations (28.4%). In children aged 12 months and younger, congenital and chromosomal diseases (19.2%) and respiratory system diseases (18.2%) were the leading causes of death. The most common symptoms of the children were difficulty in breathing (47.3%), difficulty swallowing (26%), loss of consciousness (25%) and fever (20%).

**Conclusion:** Our results indicate that we can decrease a lot of mortalities after incidents with suitable preventative measures, but any changes in mortality rate in congenital and chromosomal diseases need preparing more expensive diagnostic and treatment facilities. However; higher mortality rate following respiratory infection diseases in

young children represents the need of advanced immunization program (including against Haemophilus Influenza and pneumococcal infection).

### Factors affecting breakfast consumption in students

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**Background:** Since teenagers are one of the vulnerable groups in our society and are very sensitive in terms of physical development and physical health, so any disruption in their nutritional status can lead to physical growth and IQ impairment and ultimately, their health may be impaired. This study aimed to investigate factors influencing breakfast consumption in students in Tehran.

**Methods:** This survey was a descriptive study. Data gathering tool was a questionnaire that was distributed between 300 students in three educational sections randomly. Finally, data were analyzed with SPSS software.

**Findings:** Most people didn't eat breakfast because late waking up and after that 29 people have expressed that didn't eat breakfast due to lack of appetite. 12 people didn't like to eat breakfast. The remaining of people declared that the main reason for not eating breakfast is not ready breakfast when they were leaving the house.

**Conclusion:** The results showed that factors of age, educational section, parents' educational level and number of children has no impact on students' breakfast consumption. On the basis of our results, there is a significant relationship between father's occupation and frequency of breakfast consumption. **Keywords:** breakfast consumption, high school students

### Relationship between duration of breastfeeding and maternal factors in educational staff of Tehran

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**Background:** Breastfeeding is considered as the best food for babies and provides all nutritional needs for their health. Increasing of breastfeeding reduces the level of infant diseases, including respiratory and urinary tract infections, gastroenteritis, infectious and diarrheal diseases in the community. Other breastfeeding advantages for mothers are risk reduction of breast and ovary cancers, osteoporosis and hip fracture. With regard to the importance of breastfeeding and its benefits for mothers and the importance of educational staff in society, this study was designed to evaluate between duration of breastfeeding and maternal factors in this group of society of Tehran.

**Methods:** The current survey was a cross-sectional analytical descriptive study. Sample size included 355 educational staff from district 7 of Tehran which at least had one child. Data were collected by questionnaire and were analyzed with SPSS software using statistical tests. P value less than 0.05 were considered as meaningful values.

**Findings:** The averages of age, weight and height of participants were 42.09 years old, 67.2 kg and 160.3 cm

respectively. The mean BMI was 26.15. More than of half of mothers (59.5%) were overweight or obese. Most mothers (55.5%) had beyond high school diploma. Most mothers (45.4%) had two children. The average ages of first and last delivery were 24.22 and 30.86 years old. 58.7 percent of participants had a history of consumption of OCP. 11.9% of mothers had no breastfeeding to their children. The mean duration of breastfeeding was 25.5 months to all children and 11.75 months per child. There wasn't any significant association between duration of breastfeeding with age, height, educational level, work place, consumption of OCP, exercise and dominant mood ( $p>0.05$ ). Duration of breastfeeding is increased with rising of weight and BMI and decreasing of age at first birth.

**Conclusion:** The duration of breastfeeding is increased with rising of mother's BMI and its ascent to obesity.

**Keywords:** breastfeeding, educational staff, BMI

### Attitude and practice of mothers referring to a health and medical center toward their child common cold

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**Background:** Common cold is the most common infectious disease. Despite it's simple and safe but can be problematic in various ways. The aim of this study was to evaluate mothers' attitude about this disease and their practice regarding the disease. **Methods:** This survey was a cross-sectional descriptive-analytical study. The under study population were married women with children referring to a health and medical center of north Tehran. Data gathering tool was an informative form that was completed by interview. Data was analyzed using SPSS software.

**Findings:** 43% of mothers initially referred to physicians at the time of children's common cold and 34% of them used drugs as the first step. The most common drug that was used to treat the disease was pediatric grip syrup (82.5%). 37% of mothers believed that the warming of child at the time of disease is a suitable way for prevention of disease.

**Conclusion:** It seems that under study mothers had optimal attitude and practice toward their children common cold.

**Keywords:** common cold, attitude, practice, mothers

### Growth retardation in children at the first 2 years of life and its related factors

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**Background:** Growth impairment of children is one of the nutritional problems in Iran. The aim of this study was to determine frequency of growth retardation and its related factors in children at the first 2 years of life.

**Methods:** This cross-sectional descriptive analytical study was performed on 150 children referring to health and medical center of Torab. Growth retardation in children was defined as weight loss or stabilization of it rather than previous examination. Data was analyzed with statistical tests of Chi-square, Mann-Whitney, and logistic regression.

Included and excluded criteria were: punctually birth with weight more than 2500 gram, being a singleton, having age at least 2 years old, having no specific illness or hospitalization after birth and enough number of referrals to physician.

**Findings:** On the basis of results, there was growth retardation in 88.7% of children with the highest frequency in the sixteenth month of life. The most common causes of growth retardation were respiratory infection, diarrhea, teething, stopping breastfeeding and starting complementary feeding respectively. There was a relationship between the mother educational level and growth retardation ( $P=0.057$ ); so growth disorder in high school diploma group was more than associate degree group. There was a significant association between mothers and fathers occupation and growth disorder ( $p<0.05$ ). Children who were breastfed only with mother's milk in the first 6 months of their life, had less growth retardation ( $p<0.05$ ). Between age of onset of supplementary food and growth retardation  $p=0.056$  was obtained. There wasn't any significant association between growth retardation and breastfeeding, age of stopping of breastfeeding, age of onset of iron and multivitamin supplements, causes of growth disorder such as respiratory infection, diarrhea, teething, stopping breastfeeding and starting complementary feeding.

**Conclusion:** The results showed that impaired growth is one of the children's health problems and frequency of growth stopping is more than growth reduction. Since the educational level of mothers is inversely related to growth disorder, so increasing of maternal educational level could have a positive impact on limiting of growth failure in children.

**Keywords:** growth retardation, risk factors, causes of growth retardation, the first 2 years of children life

### Measurement difficulties in oral health-related quality of life in children

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**Background:** Oral health is an integral component of children's health. Oral and dental complications can impair physical and social efficiency and self-confidence which can reduce Oral Health-Related Quality of Life (OHRQoL). For example Early Childhood Caries is the most common type of oral and dental diseases in children although that is not life-threatening, it can negatively effect on OHRQoL. Children's OHRQoL have different dimensions: child impact (Functional factors, Oral symptoms, psychological and social factors), and family impact. Traditional clinical methods of measuring dental health only give a superficial overview of oral and dental needs. The use of these measures alone has considerable limitations such as failing to capture the subjective experience of individuals and what people really feel. To overcome this shortcoming, over the past few years several questionnaires have been designed for assessing the impact of oral conditions on the quality of life in adults and children. Measurement difficulties in children mainly arise due to complex conceptual and methodological issues involved in the construction of self-report health status indicators for children. In addition age differences in the cognitive, emotional, functional, and behavioral characteristics must be accommodated within OHRQoL questionnaires. Several questionnaires have been

designed for children such as Child Oral Health Quality of Life Questionnaires (COHQoL), Child Oral Health Impact Profile (COHIP), The Early Childhood Oral Health Impact Scale (ECHOIS), etc. This paper reviews difficulties in measuring OHRQoL in children and discusses about suitable questionnaires in different ages and the appropriateness of using information from parents or caregivers.

**Keywords:** child, oral health, quality of life

### **Endoscopic Findings of Recurrent Abdominal Pain in Children and Effective Factors**

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**Background:** Recurrent abdominal pain (RAP) is one of the most common complaints in childhood. Abdominal pain attacks occur at least for three consecutive months and affect children's normal functions. RAP divided into two organic and non-organic categories. Ninety percent of RAP in children was thought previously as functional. While with advancement of technology and doing more investigations such as endoscopy, this amount is reduced recently. Due to the lack of any studies on the causes of recurrent abdominal pain in children in Urmia and contradictory results of different studies on the abdominal pain causes in children through endoscopies, we decided to review various causes of recurrent abdominal pain in children who are undergoing endoscopy.

**Method:** Between 2008 to 2011 this descriptive cross-sectional study, after approval of the research council and ethics committee of the university was conducted through sampling census in endoscopy ward of Motahhari hospital. The 1-15 year old children who referred due to chronic abdominal pain and had epigastric tenderness in physical examinations, and were suspected to have acid peptic disease and absence of other cause for their abdominal pain, were enrolled to study. 250 children were examined through upper GI endoscopy after obtaining written consent from their parents. Data collected were processed and analyzed using SPSS16 software.

**Results:** Statistical analysis showed that of 250 children with mean age of  $8.06 \pm 3.1$  years who underwent upper GI endoscopy 106 patients (42.4%) were male and 144 patients (57.6%) were female. 142 children (56.8%) with mean age of  $8.7 \pm 3$  years (58 male and 84 female) had gastritis. For 68 children (31 male and 37 female) with the mean age of  $8/3 \pm 3$  were reported esophagitis and 60 children (28 male and 32 female) with the mean age of  $8.15 \pm 3$  years were reported duodenitis. Some of the patients had more than

one site involvement. 72 children (30 male and 42 female) with the mean age of  $8.5 \pm 2.9$  had positive pathologic report for *Helicobacter pylori*. Only 58 children (25 male and 33 female) with mean age of  $7/7 \pm 3$  years had functional abdominal pain that composed 22/8 percent of the all patients.

**Conclusion:** It is concluded from this study that most recurrent abdominal pain in the children have organic causes and suggested that investigated by a gastroenterologist.

**Key words:** Abdominal pain, children, recurrent abdominal pain, endoscopy

### **Experience with Objective Structured Clinical Examination in Pediatrics Department**

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*Department of pediatrics, Colledge of Medicine, Babylon University, Babylon, IRAQ*

**Background:** To compare the candidates performance in the objective structured clinical examination (OSCE) in pediatric to the results of the traditional clinical examination, multiple choice equations examination and to find out that OSCE is fair, reliable and practical tool of assessment in pediatrics examinations.

**Methods:** One hundred sixty four, sixth year medical students of the medical college, Babylon university in the two academic years 2005/2006 and 2006/2007 were enrolled in this study. There were four data sets from the results of OSCE, MCQs, traditional clinical examination, essay examination, and two data sets were taken from students and the examiners. The paired t- test(p), correlation coefficient (r), analysis of variance and chi-square were used to analyses the results.

**Findings:** When we compare between the mean score of the OSCE and that of the traditional long case, mean MCQs and with that of mean essay, significant difference was noted. Most of the examiners and students consider the OSCE more fair and valid than other traditional clinical examination. Also most of the examiners and students consider the OSCE not a suitable alternative for traditional long case clinical examination.

**Conclusion:** Although OSCE is a reliable, fair and provide diagnostic information about both the candidates and the curriculum, it should be complemented by the traditional long case examination.



## Nursing Abstracts

### What is Computerized Physician Order Entry? And how to prevent medication error?

*Leila Hashemi (educational supervisor)-Children Medical Centre- Nursing Office*

**Background:** The safe use of medications is an important area of concern within health care. To reduce the occurrence of medication-related errors, the Institute of Medicine recommends implementing health information technologies in conjunction with other process improvements.

Technological solutions will continue to emerge as healthcare continues with efforts to improve safety and quality in all aspects healthcare delivery

**Method:** Computerized physician order entry (CPOE) systems are electronic prescribing systems that intercept errors when they most commonly occur — at the time medications are ordered. With CPOE, physicians enter orders into a computer rather than on paper. Orders are integrated with patient information, including laboratory and prescription data. The order is then automatically checked for potential errors or problems.

The use of a CPOE system can help reduce errors related to poor handwriting or transcription of medication orders.

**Conclusion:** Although CPOE, and other medical technological advances have shown evidence of a decrease in medication errors, studies have revealed that errors have occurred due to faulty computer interface, miscommunication with other systems and lack of sufficient decision support. Human errors have also played a role in errors through inexperience, inadequate knowledge, interruptions and typing errors. Malfunctions or errors must be taken into account when using this equipment or following procedures. There still remains the chance that an error can occur in any situation. The medical arena will continue to advance technologically in hopes to improve patient care and patient safety .

### Nurses' knowledge of child abuse in Isfahan

*Dr. Hedaïati, mahrang, forensic medicine specialist, Alzahra hospital, Isfahan*

*Dr. Hedaïati, mahsa, radiologist Department of radiologic, Tehran University of Medical Sciences.*

**Nurses' knowledge of child abuse in Isfahan Background** Child abuse is Injury or threat of physical health or mental well-being of the Child whit parents or others. A large number of cases of Child abuse were in hospitals and medical centers that they were diagnosis by nurses over other medical personnel so the nurses' knowledge and information on risk factors and symptoms and diagnosis of abuse is important **Methods** This study is descriptive – analytical. Attended by 200 nurses working in hospitals in Isfahan and used questionnaire. The questionnaire included. questions about the information on risk factors and symptoms of physical – psychological and reporting child abuse. Data analyses with SPSS software and descriptive and analytical statistics. **Findings Results** indicated that 76 percent of nurses had enough information about on risk factors and symptoms and signs of physical – psychological and sexual abuse. 79 percent of nurses had enough

information about report and steps follow, but 65 percent of they did not know enough about neglect and did not report it **Conclusion** Education classes is needed for nurses also created coordinated and integrated system for referral and follow-up and abused in certain centers .

**Key words:** Child abuse/diagnosis- nursing Assessment-neglect

### Effect of back stroke massage by sesame oil in physiological parameters and hospitalization anxiety in school age children hospitalization in hospital

*Jalalodini Alieh, Noriyan Manighea, Saatchi Kiarash, kovosi Amir, Naderifar Mahin*

**Background:** The outcomes of hospitalization anxiety are mental and behavioral health disorders and impairs psychiatric, biological and cognitive development. One of the methods of anxiety reduction is massage that cause reduction of anxiety and change in physiological parameters. Attention to increased rate of school age hospitalization and effects of massage in anxiety reduction and physiological parameters changing this study implement to survey effects of slow stroke back massage in physiological parameters and hospitalization anxiety in school age children in 1389 .

**Method:** This study was an experimental study. 80 school age girls selected with sequential sampling and divided randomly in two groups (40 massage and 40 control group). The tools were a demographic questionnaire and State-Trait Anxiety Inventory for Children (STAI-C). In intervention group, slow stroke back massage by using sesame oil implemented for 3 days. Sessions of massage last 15 to 20 minutes for 3 times a day. In second to fourth days of hospitalization before sleeping and before and after of the three day period in second to fifth days of hospitalization determined physiologic parameters and hospitalization anxiety .

**Results:** Results showed between differences mean of pulse, systolic and diastolic blood pressure in second to fifth days in two groups massage and evidence been significant reduction difference ( $p < 0/05$ ). But differences mean of breathing in two groups in second to fifth days did not show significant difference statically ( $p > 0/05$ ). Also between differences mean of state anxiety in two groups in second to fifth days been significant reduction difference ( $p < 0/05$ ). Mean of physiological parameters and state anxiety in other days showed difference results .

**Conclusion:** Results show massage effect in hospitalization anxiety in three day period, Also massage effects on reduction significant differences in pulse, systolic and diastolic blood pressure in this time

**Key words:** Key word: stroking massage, hospitalization anxiety, physiological parameters, school age children

### The effect of parents empowerment program on their involvement in emotional and physical care of premature infants in NICU

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**Introduction and Objective:** About 10% of infants are born prematurely and their hospitalization is avoidable in many cases. This event can represent a considerable source of stress for parents and disrupts the expected development of interactive skills for both the parent and the infant. Nurses are persons, which can prevent of these problems whit family centered cares. Our goal was to study the effects of premature infant's parent empowerment program in NICU, as a family centered intervention, on their involvement in emotional and physical care of premature infants.

**Methods and Participants:** A quasi-experimental, posttest-only design with a comparison group was conducted with 65 families with preterm infants from 2010 to 2011 in NICUs in two Hospitals of Tehran University of Medical Science. All mothers and fathers were above 18 years of age and whose infants born at the study sites, below 37 weeks of gestational age. Parents in experiment group received information and behavioral activities about the appearance and behavioral characteristics of preterm infants and how best to parent them via verbal face to face education, audio taped in CD or Bluetooth and written materials. In order to measure the parent's involvement in emotional and physical care of premature infants in NICU, the 26-item checklist was used.

**Findings:** Mothers in the empowerment program group were more involved in their emotional infants' care (M: 10.10±1.37) compared with control mothers (M: 8.93±1.72) (p=0.00), and fathers in the empowerment program group were more involved in their emotional infants' care (M: 9.03±1.45) compared with control fathers (M: 6.70±1.60) (p=0.00). As well as, mothers in the empowerment program group were more involved in their physical infants' care (M: 7.67±1.32) compared with control mothers (M: 5.60±1.04) (p=0.00), and fathers in the empowerment program group were more involved in their physical infants' care (M: 2.47±1.04) compared with control fathers (M: 1.77±0.73) (p=0.00).

**Conclusion:** Probably, parent empowerment program can involve parents in their infants' care in emotional and physical care of premature infants in NICU

**Key words:** Parent Empowerment Program; Parents; Infants, Premature; Intensive Care Units, Neonatal; Family Nursing

### Factors Affecting Weight Gain In Low Birth Weight Preterm Infants

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**Background and aims:** Low birth weight is a major health problem in pediatrics and preterm birth is the principal determinant of low birth weight both contributing substantially to infant mortality and childhood disabilities; besides later developmental growth and weight gain may be limited. Efforts to prevent prematurity or low birth weight by considering factors in prenatal and post natal phase are at the core of health policies. On the other hand the costs to care for the immediate needs of these infants, and to provide the long-term care and special attention that some will need throughout life are extremely high; So determining every factor effects affecting post natal growth and weight gain seems necessary to limit the later disabilities.

**Methods:** In a prospective study from September 2007 to October 2008 a total of 170 VLBW preterm infants (1000-1500 gr, 26-31 week) without major congenital birth defects, severe asphyxia were selected among the infants were hospitalized in Tabriz Alzahra NICU. TPN started in a short time after birth and enteral feeding was initiated during the 5 first days of life. Infants were followed up about the important outcomes during NICU stay to test their effect on weight gain.

**Findings:** Mean birth weight of infants was 1310.26±804.26 grams and they aged 30.51±1.34 weeks. 73 % of them had received enteral feeding in the first 2 days of birth. Duration of parenteral nutrition was about 10.55±5.53 days and these infants reach total enteral feeding 15.51±6.23 days after birth. Days to regain birth weight (15.51±6.25 days) was mostly influenced by infant sex, birth weight, surfactant administration, hypoglycemia, feeding start day and tolerance, days to get complete enteral feeding, duration of ventilatory support, stay days and hours of required phototherapy.

**Conclusion:** preventive strategies to prevent low birth weight and preterm labor, encouraging early start and appropriate advancement of enteral feeding, proper support and education of mothers and families on providing breast milk during hospital stay seem be useful implication in gaining birth weight as soon as possible.

**Acknowledgments:** We thank Research Deputy of Tabriz University of Medical Sciences, nursing staff neonatologists, attending physicians and parents of neonates. of the Azahra NIC, the nursing staff of the Azahra Neonatal Intensive Care Unit, the staff of the Lactation Program and all the neonatologists, attending physicians and parents of neonates

**Key words:** Weight, VLBW, Preterm infant

### Comparison of prone and supine positions on cardiorespiratory rate of Nasal CPAP treating preterm infants with respiratory distress syndrome in Tabriz Alzahra hospital 2010

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**Background and Objective:** Results of several studies suggest that prone position is beneficial in improving of preterm infants' cardiorespiratory situation. Considering that there hasn't been found any clear study about the effect of this position on cardiorespiratory rates of N-CPAP treating preterm infants, this study aims at comparing supine and prone positions on cardiorespiratory rates of N-CPAP treating preterm infants with respiratory distress syndrome.

**Method:** This experimental study has been done in crossover method in 1389 over 44, 29-34 weeks gestation preterm infants which were under N-CPAP treatment in NICU ward in Tabriz Alzahra Hospital. Infants were randomly divided into 2 groups and first group was at first prone and then supine and the position of second group was vice versa. Heart rate and respiratory rate were assessed in each position for 30 minutes. The data was recorded in a data collection form and was analyzed using SPSS. Ver 17, and repeated measurements ANOVA.

**Results:** Results of statistical tests showed that there is a significant statistical difference in HR and RR in both groups in each two positions (p<0.05). By comparing groups' parameters, the results of variance test were

meaningful ( $p=0.000$ ), i.e. infants' HR and RR decrease when their position is changed from supine to prone.

**Conclusion:** This study suggests that in prone position rather than supine, HR and RR of infants who are under N-CPAP treatment decrease. Thus the infants can get to more stable status. Therefore, if there isn't any obstacle for changing the infant's position, it's possible to use prone positioning to improve cardiorespiratory situation while treating by N-CPAP

**Key words:** Preterm infant, heart rate, respiratory rate, prone position, Supine position

### **The effect of breastfeeding and maternal-infants skin to skin contact on infant's first injection pain.**

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**Background:** Infants are more sensitive than adults to pain staining because of disformation of descending control system and non-pharmacological methods of pain control is recommended for them. So the aim of this study was determining of breastfeeding and mothers and infants skin to skin contact effect on pain of the first injection in infants.

**Methods:** This study was a clinical trial with four intervention and control groups that has been done in the delivery room of Alavi hospital during eight months in 2010. 200 infants were selected randomly (in four groups and each group:  $n = 50$ ) group1: no intervention, group2: breast-feeding, Group 3: skin contact between mother and infant and group4: breast-feeding and skin contact between mother and infant. Two researchers as observers from the moment of injection until 45 seconds after that observed and completed all of the DAN scale factors and observation paper. Data was analyzed using SPSS software, chi-square test and t test.

**Results:** Results indicate that all groups were homogenous in the mean age, gender, first and fifth minute Apgar score and birth weight. The mean pain severity was 5/34 in the first group, 3/70 in the second group, 4/16 in the third group and 3/48 in the fourth group, based on DAN scale criteria. Statistical tests have been shown significant difference between the first (no intervention) and fourth group (breastfeeding with skin to skin contact) ( $p=0/04$ ).

**Conclusion:** The pain severity had been decreased during breastfeeding and mothers-infants skin to skin contact. So these two methods can be used for prevention of mental and emotional effects of pain in infants during injection.

**Key words:** breastfeeding, skin to skin contact, pain, intramuscular injection.

### **"Relationship between asthma and obesity in children"**

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**Introduction:** Asthma is the most common chronic disease of children in world. Nearly 90% of that occurs in childhood that is indicating the role of internal and external factors of asthma in childhood or before birth. Asthma is a airways chronic inflammatory disease. Furthermore obesity as a body physical composition disorder, which is defined as the relative or absolute increases of fat tissue of body

and depend on many factors and has been identified as a risk factor for asthma. The purpose of this study is determined of relationship between asthma and obesity in children.

**Methods:** This was a descriptive-comparative study on 280 asthmatic children that admitted to Boali Hospital at Ardebil. The check list was composed of demographic status and BMI. The data were analyzed by SPSS and descriptive analysis, Chi-square, and Pearson correlation.

**Results:** This study showed that most of children with asthma, 123 (43.9%), were obese and 98 (34.5%) had overweight. Also the results of the chi-square test ( $P=0.001$ ) and Pearson correlation ( $r=0.91$ ) indicate that there was significant positive statistic relationship between obesity and asthma in these patients.

**Conclusion:** Considering to results of this study that there was strong relationship between obesity and asthma, nursing care in asthmatic children should be based on family centered care for enhancing this children and their parent's knowledge and self-efficacy to prevent and control obesity and other asthma risk factors

**Key words:** asthma, obesity, children

### **Parental correlates of burn injuries in pediatrics**

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**Background:** Burn is one of the most important events and incidents related to health problems that can lead to severe injuries, and its further side-effect make it to be critically important. Injuries caused by burnt incidents are common in infants. However, all these injuries are predictable and preventable; the data available for these procedures is not enough. Hence, the present study aims to investigate familial factors related to burnt in infants.

**Methods:** The current study is a comparative cross-sectional study. Sampling is sequential method, and participants for each group are 175 people which in whole are 350 people. Researcher, first, gathered the data related to burnt group; and then gathered the data from healthy group. Applied instrument was a questionnaire that was filled by interviewing parents.

**Findings:** Analyzing data revealed that the age of mothers in burnt group (38.3%) and healthy group was between 25-30 that a significant relationship has been found between them. father education in burnt group (49/1%) and in healthy group (51/4%) was under diploma which caused to significant relationship ( $p<0.001$ ). Majority of families in burnt group (51.4%) and healthy group (58.9%) earned between 200-500 thousands tomans monthly which had significant relationship ( $p<0.001$ ).

**Conclusion:** based on results, most burnings happened when infants were being fed and when all members of family were present. Burnt incidents were proved to happen more in low educated families. So, by effective training courses, risks of more burning events can be decreased and prevented.

**Key words:** Children, Burn, Parent

## Risk Management and Pediatric Patients

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Risk Management and Pediatric Patients Fateme Valizade, Seide Fateme Ghasemi Lorestan University of Medical Sciences, Nursing and Midwifery Faculty There are serious risks involved in hospitalization, especially for pediatric patients who cannot articulate specifics about how they feel, and how those feelings are changing. Each year, more patients die of hospital-caused infections, medication errors, and other adverse events. Risk management is a methodology used widely in both private and public services, which allows us to systematically identify and assess risks which may prevent us from reaching particular objectives. Risk management or quality assurance concerned with finding and rectifying errors that might cause harm to patients, often before such harm resulted. This can be extremely complex when working across partnerships and organizations, but if applied consistently, it can be an effective tool in ensuring we are aware of risks, and how to manage them. In this article we will discuss ways to create a safer hospital environment for children and their families; the importance of listening to parents; having designated pediatric wards; pediatric trained staff for hospitalized children; and the processes around consideration of child protection. Although prevention of all malpractice lawsuits is not possible, nurses can help defend themselves against malpractice judgments by following guidelines for informed consent, refusal of care, and documentation ; acting as a client advocate; working within accepted standards and the policies and procedures of the facility and maintaining their level of expertise .

**Key words:** Risk Management, safety, pediatrics

## The Effectiveness of School-Based Intervention Program on Senior Students' Problem Solving Skills in boys' schools

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**Background:** Life skills training (LST) is the best way to promote the psycho-social abilities in the protective unit, which is named school. One of the LST program competences is problem solving skills, therefore, we did this study in order to determining the effectiveness of school- based intervention program on senior students' problem solving skills in boys' schools .

**Methods and materials:** This study is a pre and post test quasi- experimental study with control group, consisting 84 students in grade 3 of Maragheh's boys middle schools that we selected them randomly, and after pre-test divided in 2 groups. In the case group, we performed the LST program in the 7 session, and then assessed problem solving skills. We used PSC (Problem Solving Confidence) subscale to assess and analyzed data by SPSS ver 15 software and t-test and  $\chi^2$ .

**Finding:** In the case group there were significant difference between pre and post test mean scores of problem solving skills. So that after performing school-based interventions problem solving skill development in case group had been increased (P=0.02). Differences between post test's and pre test's mean and standard

deviation of this group was  $2.05 \pm 5.23$ ; it was  $-0.98 \pm 5.11$  for control group (P<0.001). After interventions the problem solving scores was significantly increased but in case group it was decreased in control group .

**Conclusion:** In the case group LST had positive effect on students' problem solving skills. Then we offer it as a protective factor in school to implement .

**Key words:** school- based services, prevention, student, problem solving, substance abuse

## Nurses' viewpoints of Inhibitors to use of non-pharmacological methods for Pediatrics ' postoperative pain management: a qualitative study

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**Background and Objective:** Pain relief prevents severe complications and side effects and provides the pediatrics, a normal growth and development. The results of an extensive literature search indicate that nurses' viewpoints on inhibitors that affect their non-pharmacological intervention in pain management have rarely been studied especially through qualitative method. The purpose of this study was to gain a better understanding of nurses' viewpoints of inhibitors to use non-pharmacological methods postoperative pain management.

**Methods:** A qualitative approach was adopted using content analysis of semi-structured interviews carried out with 17 registered nurses from four educational hospitals in Tehran city. The data were analysed using constant comparative method.

**Findings:** Most of participants haven't got any training concerning pain management methods and acknowledged that they use non-pharmacological intervention in pain management based on their experiences. Methods of imagery, distraction, positive reinforcement, thermal regulation, massage and positioning frequently used compared to other methods. Main themes emerged from the data included: Heavy workload/lack of time, lack of equipments, cultural problems, lack of educational preparation, and the child's inability to cooperate were the most commonly reported inhibitors.

**Conclusion:** Any programmers for change must address the wider complex influences on inhibitors to use non-pharmacological intervention pain management. It must be included: evaluating the nursing curriculums, lack of equipments and environmental problems. Nurses may benefit professionally from openly sharing their experiences with their colleagues.

**Key words:** Nurse, Pain, Non- pharmacological pain management, pediatrics

## HTLV1 screening necessary before cardiac catheterization of congenital heart diseases

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**Backgrounds and aims:** congenital heart Disease (CHD) is an important health problem. Homodynamic catheters are widely reused mainly in developing countries where the

costs of new devices are very high. Although viral serology is routinely screened prior to angiography the significance of it is not clear. This study aims to evaluate the necessity of such screening in patients with congenital heart diseases.

**Methods:** in the present cross sectional study, 442 cases with congenital heart diseases that underwent cardiac catheterization in Imam Reza Hospital, Mashhad, Iran during 2001-2006 were enrolled. The viral markers of hepatitis B surface antigen and antibodies against hepatitis C, HIV and HTLV1. 2 were detected in all patients undergoing cardiac catheterization.

**Results:** out of 142 patients with congenital heart diseases undergoing cardiac catheterization 80 patients were female. The patients aged between six months to 9.3 years (mean 7.8 years). Screening of these patients showed that 6 (1.3%) of them were seropositive for HTLV1, 2, four (0.9%) for HBs Ag, four (0.9%) for HCV. None of the screened patients were HIV positive.

**Conclusion:** positive viral tests were seen in few patients in this study. Therefore by appropriate precautions, cleaning and sterilization procedures these tests should be considered just for high risk patients.

**Key words:** CHD Cardiac catheterization, Viral immunologic study, HTLV

## Shaken Baby Syndrome Prevention and Awareness Program

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Shaken baby syndrome is a type of inflicted traumatic brain injury that happens when a baby is violently shaken. A baby has weak neck muscles and a large, heavy head. Shaking makes the fragile brain bounce back and forth inside the skull and causes bruising, swelling, and bleeding, which can lead to permanent, severe brain damage or death. More than 1 million children are severely abused annually. Shaken baby syndrome (SBS), one example of physical abuse, is a leading cause of sickness and death in infants. An estimated 1, 200 to 1, 400 babies suffer from preventable abusive head trauma (otherwise known as "Shaken Baby Syndrome (SBS).") One out of four babies dies of this head trauma and the other three babies will need ongoing medical attention for the rest of their life. In the worst cases, the death rate is almost half of all babies involved. Shaken baby syndrome (SBS) is a form of inflicted head trauma and a form of child abuse. Shaken baby (preventable head trauma) is caused by direct blows to the head, dropping or throwing the child, or shaking the child. Head trauma is the leading cause of death in child abuse cases in the United States. Unlike other forms of inflicted head trauma, SBS results from injuries caused by someone vigorously shaking an infant. Infants are at particular risk for injury from this kind of action due to their anatomy. The majority of incidents occur in infants who are younger than one year old. The average age of victims is between 3 and 8 months. The perpetrators in SBS cases are almost always parents or caregivers, who shake the baby out of frustration or stress when the infant is crying inconsolably. Sadly, the shaking has the desired effect: although at first the baby cries more out of fear, it eventually stops crying as the brain is damaged. Approximately 60% of shaken babies are male, and children of families who live at or below the poverty level are at an increased risk for SBS, as well as, any type of child abuse. It's estimated that the perpetrators in 65% to 90% of cases are males - usually either the baby's father or

the mother's boyfriend, often someone in his early twenties. When someone forcefully shakes a baby, the child's head rotates about uncontrollably because an infant's neck muscles aren't well developed and provide little support for the head. The violent shaking moves the infant's brain back and forth within the skull, rupturing blood vessels and nerves throughout the brain and tearing the brain tissue. The brain strikes the inside of the skull, causing bruising and bleeding to the brain. The signs and symptoms depend on the duration and force of the shaking, the number of episodes, and whether impact is involved. All affect the severity of the infant's injuries. In the most violent cases, children may arrive at the emergency room unconscious, suffering seizures, or in shock. But, in many cases, infants may never be brought to medical attention if they don't exhibit such severe symptoms. In less severe cases, a baby who has been shaken may experience any of the following: lethargy, irritability, vomiting, poor sucking or swallowing, decreased appetite, lack of smiling or vocalizing, rigidity, seizures, difficulty breathing, altered consciousness, unequal pupil size, an inability to lift the head, an inability to focus the eyes or track movement. It may be difficult to diagnose this head trauma, for many cases of SBS are brought in for medical care as "silent injuries." In other words, parents or caregivers don't often provide a history that the child has had abusive head trauma or a shaking injury, so doctors don't know to look for subtle or physical signs. This "silent epidemic" can result in children having injuries that aren't identified in the medical system. And again, in many cases, babies who don't have severe symptoms may never be brought to a doctor. Unfortunately, unless a doctor has reason to suspect SBS, mild cases (in which the infant seems lethargic, fussy, or perhaps isn't feeding well) are often misdiagnosed as a viral illness or colic. Without a diagnosis of shaken baby syndrome and any resulting intervention with the parents or caregivers, these children may be shaken again, worsening any brain injury or damage. Finding ways to alleviate the parent's or caregiver's stress, at the critical moments when a baby is crying, can significantly reduce the risk to the child

## Pediatric palliative care

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**Introduction:** Pediatric palliative care is an interdisciplinary collaboration that seeks to improve the quality of life of all children with life-threatening conditions, as well as their families [1]. It focuses on prevention and relief of suffering, regardless of the stage of disease, and comprehensively addresses the physical, psychosocial, or spiritual needs of the child and family [2-4]. Although the principles of palliative care are the same in children and adults, the implementation of care is substantially different because of the following: • Varied cognitive abilities and emotional maturity of the child or adolescent • Differences in the causes of life-threatening illness • Differences in emotional and psychological issues regarding seriously ill children • Necessity of dealing with the child, the parents, and in some families, siblings • Authority for decision making about care resides with the parents, not the child Pediatric palliative care will be reviewed here. The many aspects of palliative care in adults are discussed separately. (See "Palliative care: Overview of patient assessment".) GOALS — The overall goal of pediatric palliative care is to enhance the quality of life for a child with an underlying life-threatening illness. As stated

by the World Health Organization (WHO), pediatric palliative care "is the active total care of the child's body, mind, and spirit, and also involves giving support to the family. It begins when illness is diagnosed, and continues regardless of whether or not a child receives treatment directed at the disease" [2].

**SUMMARY AND RECOMMENDATIONS** — Pediatric palliative care utilizes an interdisciplinary team to focus on quality of life, and preventing and relieving suffering in children with life-threatening illnesses and their families. It should be provided regardless of the underlying disease, stage, or need for other therapies • Although the goals of palliative care in children are the same as those in adults, implementation of care is different because of the need for age-based care, differences in the underlying illnesses, the emotional and psychological issues in dealing with a poor outcome in a child, and the necessity of dealing with the child, parents, and in some families, siblings. (See 'Introduction' above and 'Goals' above.) • Palliative care is optimally introduced when a life-threatening diagnosis is made or, in children with chronic diseases, when there is a decline in health status from baseline. Conditions in which palliative care is beneficial include those in which curative treatment is possible but may fail (eg, cancer), progressive conditions without curative treatment (eg, trisomy 13), chronic conditions with intensive medical long-term therapy (eg, cystic fibrosis), and severe nonprogressive conditions with health complications (eg, severe cerebral palsy). (See 'Goals' above.) • Effective palliative care includes the following: • Strong relationship between the medical team, and the child and family resulting in successful, open, and effective communication. (See 'Communication and building relationships' above.) • Establishment of goals of care focused on quality of life, and preventing and relieving suffering. (See 'Developing care plans based on goals' above.) • Medical decision making based upon established goals of care. (See 'Medical decision-making and goals of care' above.) • Managing symptoms due to the underlying disease and ongoing medical treatment. These symptoms include pain, dyspnea, nausea and vomiting, fatigue, anorexia and weight loss, depression and anxiety, delirium and agitation, sleep disturbance, anemia and bleeding, and seizures. (See 'Symptom management' above.) • Preparation and support of the child and family for end of life care including management of end of life symptoms, selection of preferred location of death, and discussion of the benefits of autopsy and organ donation. (See 'End of life care' above.) • Bereavement support for the family following the death of the child (see 'Bereavement' above). Use of UpToDate is subject to the Subscription and License Agreement.

**Key words :** Pediatric+palliative+care

### Evaluation of behavioral and emotional problems in children with congenital heart disease (ConHD)

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**Methods:** Study of reliable sources, research on the internet and review of literature .

**Introduction:** Since 1980, many aspects of diagnostic, surgical, and medical treatment for ConHD have been improved. All these changes are generally believed to result

in improved cardiological outcome. It may be hypothesised that the presumed improvement in cardiological outcome has improved (long-term) behavioral and emotional adjustment of the children treated upon .

**Results:** Clinical observations and investigations reveal that problem behaviors evoked by spiritual and compliance disruptions manifest a two-fold incidence in children with chronic diseases compared with healthy age. Limitations imposed on the child by chronic disease led the child to a negative perception of him or herself. Children with chronic illnesses are more likely to suffer from Internalizing problems. The influence of the family chiefly the mother is of particular importance in compliance and behavior disturbances or healthy behaviors of children. The number of children in the family exceeded two or more, the child's problem behaviors related to anxiety/depression showed a remarkable increase. Findings may result from the parents' young age and inexperience and show the adverse effect of the deprivation of adequate time from the child as the number of children in the family increases. The education level of the mother exhibited significant impact on withdrawn behaviors and somatic problems. Previous data of the sample showed reduced health-related quality of life as to motor functioning in these children, according to their self-reports. Especially for younger boys motor functioning is important. Elevated somatic symptoms may reduce this kind of social activities for younger male ConHD patients. Intercommunication between the child and his or her environment leads to various behavior patterns. No relationship is found between the children's age, sex, sequence among siblings, the type of the disease, and the problem behaviors determining withdrawn behaviors .

**Conclusion:** Special attention should be given to screening and identifying children at risk for developing psychopathology to provide them with adequate services and prevent the development of additional problems. Assessment and treatment of psychopathology at a young age is desirable in patients with ConHD because psychopathologic symptoms seem less persistent and thus better treatable at a young age. Especially younger male ConHD patients deserve special attention. Lending support to children and their families is recommended to nurses to improve the quality of life for children with CHD and to prevent and cope with possible existing problem behaviors .

**Key words:** behavioral, congenital heart disease, children

### New NICU design for beter outcome

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**Background:** The neonatal intensive care unit (NICU) is vital to the survival of preterm infants[1].The first generation of NICU hospitals is rooted in the 1960s that followed were brightly lit and large. In the 1980s modern hospital NICUs emerged with notable changes by administering of surfactant but in this NICUs treatment areas were defiant in size and family areas were basically nonexistent. Current generation is single family room NICUs that is being designed to meet the emotional and physical needs to care for fragile babies in a home-like environment that incorporates safety, comfort and control processes[2] and allows each infant to receive appropriate lighting, sound, and activity level for its particular developmental state[3]. The ability to adapt the hospital environment to individual developmental needs of neonates

is a goal of neonatal intensive care, and, when practiced, can enhance the medical progress of critically ill infants[4]. [ **Findings:** The SFR design provided a quieter, more controllable environment for neonates, and their medical progress was improved over that of the open-bay unit without increased safety risks. improved nutritional, respiratory and breastfeeding progress seen in the SFR. Infants in the SFR unit had fewer apneic events, reduced nosocomial sepsis and mortality, as well as earlier transitions to enteral nutrition[5] SFR reduced the parents' burden by providing space for them to come to terms with the situation and to start the bonding process[6]. More mothers sustained stage III lactation, and more infants were discharged breastfeeding in the SFR[5]. SFR NICU design provides solutions for increasing parent privacy and presence[7]. Having parents, close by the bedside facilitated elective kangaroo care, providing for earlier physiological stabilization of preterm infants[5], minimizing the number of undesirable beds, increasing staff satisfaction and reducing staff stress.[7 ]

**Conclusion:** Balancing the needs of infants, families, and caregivers in the NICU may be best achieved in a single-room design[8]. Several factors have contributed to the recent popularity of SFRs 1) infant outcomes 2) increased understanding of the value of breastfeeding and kangaroo-care 3) the hospital-wide trend toward private rooms 4)the success of family-centered and developmental care[9]. [

**Key words:** NICU, SFR, Infants environment, Families, Caregivers

### Self-management education for the child with diabetes mellitus

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**Introduction:** Diabetes is an unrelenting chronic illness requiring management by skilled professionals, and daily attention and action by the child and parent. Diabetes Self-Management Education provides the framework and information for preparing a family to take responsibility for the child's diabetes care, and facilitates the transition to self-care as the child matures. DSME is an integral component of care for all patients with diabetes .

**Discussion:** The national standards provide patients with information across nine content areas that represent the core body of knowledge needed by patients with diabetes such as diabetes disease process and treatment options, nutritional management, physical activity, using medications safely and for maximal therapeutic effectiveness, monitoring blood glucose and other parameters, and interpreting the results for self-management decisions, preventing, detecting, and treating chronic and acute complications, personal strategies to address psychosocial issues and concerns and personal strategies to promote health and behavior change. Optimal education requires assessment of the patient and family's functional health literacy, needs, readiness, health beliefs and attitudes, and financial or physical limitations. The curriculum and educational process is then tailored to meet these needs and expectations. Reassessment and remodeling of the plan is essential, particularly when the patient is a child. The primary outcome measure for effectiveness of DSME is behavior change. The American Association of Diabetes Educators has identified the following behaviors that are directly and positively affected by DSME: Being active, Healthy eating, Taking

medication, Monitoring, Problem-solving, Reducing risks and Healthy coping. Positive behavior changes are associated with DSME in a variety of studies of adults with type 2 diabetes .

**Conclusion:** Diabetes self-management education (DSME) is an integral component of care for all patients with diabetes. Organized DSME improves diabetes-related self-care behaviors and health outcomes, such as hemoglobin A1C. Effective DSME requires training and experience in diabetes education, and a substantial number of contact hours with the patient and family. DSME is patient-focused; patients and families should have an active role in their educational experience. Ongoing DSME or diabetes self-management support is important to optimize lifelong self-management skills. This is particularly important for the pediatric age group because of developmental and cognitive changes over time .

**Key words:** Self-management, education, diabetes mellitus

### Intensive care of children with long term tracheostomy at home

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**Background:** A tracheostomy is an artificial opening into the trachea for breathing. In the past, children with tracheostomy were forced to live in the hospital. Today, the goal with these children is to live at home. These children need to skilled nursing care for about 8 hours per day. Parents are usually the main caretakers in home. They are usually frightened about their child having a tracheostomy.

**Methods:** This study is a review article that has been done to base on collected data from internet sources related to the topic

**Findings:** Management of children with tracheostomy is a complex process that requires careful coordination and consistent follow-up. Parents must be with the child at all times and trained in CPR, use of Emergency box, suction, change the tracheostomy tube and ties, feeding, Bathing. They must protect the child's trachea from extreme temperatures, dirt, use apnea monitor at night, keep the air child breathes moist, Keep the skin around the trachea clean and dry. Parents should know about tracheostomy complications (for example, Respiratory Distress, Obstruction, Bleeding, Infection, Tracheomalacia and ...). They can use speaking valves on the tracheostomy tube to help speaking. Parent should care of their child normally. Children who are overprotected or treated as sick can become demanding.

**Conclusion:** Parents need to be comfortable with all aspects of tracheostomy care before taking their child to home. Nursing services should be arranged before discharge from the hospital to ensure that the families have enough at-home support to manage their child's care safely.

**Key words:** Tracheostomy, Children, Intensive care at home

### Coping with Stress in Iranian School-age Children, 2010

*Mahni Rahkar Farshi, M.Sc; Leila Valizadeh, PhD;  
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**Background:** Methods learnt by children to cope with their stress in their childhood will be undoubtedly used in their adolescence and they may cope with the situations with the

same methods in their adulthood. Failure to learn these skills brings some mental, physical and behavioral problems which continue until adulthood. The mental health of college students who used non-adaptable coping methods was reported low in a study. So, it is important for children to learn emotional responses suitable for a situation and as there about 5.5 million primary school students in Iran, it is necessary to perform a study with the aim of studying the methods of coping with stress among these children.

**Methods:** The descriptive research was performed with participation of 839 students of third to fifth grade of primary level in Tabriz (Iran) and a quota was randomly selected from all five educational zone of Tabriz and then sampling was randomly done inside schools. The data were collected using the SCSQ questionnaire after validity of translation and reliability using test-retest method through interviews with children and the data were analyzed using percentage and absolute frequency and linear regression test in SPSS software.

**Findings:** All coping methods inserted in questionnaire were used by students. More than 70% of students mentioned "Pray", "Say I'm sorry or tell the truth", and "Try to relax, stay calm" out of 26 cases of coping methods. According to the opinion of more than 60% of participated children, "Pray", "Say I'm sorry or tell the truth", "Draw, write, or read something" were the most useful coping methods and "Pick on someone" and "Yell or scream" are not mostly used by in children studied in this research.

**Conclusion:** Considering the results of this study, children use variable methods to cope with their stress. Therefore, parents, health trainers and authorities of schools should distinguish non-adaptive methods of children and teach them the adaptive coping strategies .

**Key words :**Stress, Coping strategy, School-Age, children

### Caring for a child with an ostomy at home

*Anahita massoompour instructor of pediatric nursing in nursing & midwifery shahid Beheshti School in tehran2011*

**Introuduction:** It can be difficult watching your little one undergo ostomy surgery, even when you know it may be a lifesaving procedure. Many parents are in a state of shock, or feeling helpless, fearful, or anxious about caring for their child after surgery. But with the right support, patience, and a little practice, you can feel comfortable caring for your child's ostomy needs.

**Content:** Caring for a new baby or raising a young child is a wonderful, life-enhancing experience. It is also a challenge, even in the best of circumstances. If your child needs ostomy surgery, your happiness will no doubt be mixed with concern over the special care that is needed. Besides learning to understand your child's medical condition, you will be called upon to learn new skills in managing the pouching system and figuring out how to balance those needs with your busy lifestyle. You do have sources for help. Besides your child's doctors, you can turn to specially trained WOC (Wound, Ostomy and Continence) nurses who specialize in ostomy care. The professional team at Hollister also has knowledge and experience with ostomies and is ready to help. Hollister has created this book to support you. It is a source you can turn to anytime - as a ready reference and a supplement to the information you receive from your medical team

You do have sources for help. Besides the child's doctors, you can turn to specially trained WOC (Wound, Ostomy and Continence) nurses who specialize in ostomy care. The professional team at Hollister also has knowledge and experience with ostomies and is ready to help. Hollister has created this book to support you. It is a source you can turn to anytime - as a ready reference and a supplement to the information you receive from your medical team. Taking the child home from the hospital after ostomy surgery is exciting and maybe a little bit scary. Here are a few things to review prior to discharge that can make transition to home a little easier.1-Be sure you watch the procedure for changing a pouch, more than once if possible2-Before discharge from the hospital, make sure you understand any medications that your child needs to take.3-There are key parts to a pouching system you should know about 4-The opening in the skin barrier should be the same size as the stoma 5-The type of pouch you use will depend on the type of stoma 6-As your child changes or becomes more active, the pouching system that works best may change.7-One of the first skills you will learn is how to empty the pouch 8-If your child's stool is liquid, placing a couple cotton balls inside a drainablepouch can help absorb some of the fluid 9-How often you change the pouching system depends on how long the skin barrier stays in contact with your child's skin 10-The skin around the stoma is called the peristomal skin and it is just the same as other skin on your child's body. It is not more or less sensitive. Although the stoma has no feeling, the skin does. One of your most important goals is to keep the skin healthy 11-Children tend to keep their own schedules but you can be ready by planning ahead. There are many ways to make a pouch change stress-free. Being prepared can make all the difference ... especially for those unscheduled changes 12-As a parent, you know that babies and young children are busy and on the go most of the time! Infants, toddlers and young children are meant to be active and generally their ostomy will not prevent them from moving around.A few helpful points are: 1-ba thing2-swimming3-sleeping4-travelling5-crawling/walking.13-Your child won't need special clothes because of a stoma, but there are ways to select clothing that will make life easier for both of you 14-A well-balanced diet is important for everyone.In general, a "special"diet may be necessary due to other medical conditions but not because of the stoma. However, here are a few guidelines that may be helpful 15-Because your child has an ostomy, there may be some situations that you need to be aware of. Report them to your healthcare provider if they occur such as: 1-skin irritation 2-prolapsed stoma3-retracted stoma4-dehydration5-bleeding

**Conclusion :**When caring for your child's ostomy, please remember these points: -Feel comfortable picking up and holding your child as you normally would, unless there are other specific medical concerns indicated by your child's healthcare team .-Whenever possible, two family members should learn how to care for your child's ostomy, so that you can provide help and emotional support to one another. The information provided in this article is general. Each child is different. Talk to your doctor, pediatric nurse, or stoma care specialist about specific medical questions concerning your child or infant

### Self efficacy is one model for empowerment

*Fatemeh Alae: faculty member of Shahid Beheshti nursing &midwifery school(Tehran)*

Introduction: The Bandura's theory on self-efficacy says that the ability to learn new skills and information is influenced by an individual's feeling of self-efficacy.

**Content:** Social cognitive theory and the Health Belief Model, are two of the most significant theories for health promotion research. Concepts from these frameworks have been used to better understand non-adherence and to develop interventions to improve chronic illness self-management. Bandura's Social Cognitive Theory states that the probability a person will perform a health behavior is related to the person's beliefs that he or she has the knowledge and ability to perform the behavior (self-efficacy) and that the behavior will result in beneficial outcomes (treatment efficacy). Bandura's concept of self-efficacy emphasizes the likelihood of engaging and persisting in a behavior despite obstacles and aversive experiences. Originally, the Health Belief Model included the concepts of perceived susceptibility to illness, severity of illness, benefits of treatment, and barriers treatment. proposed that Bandura's concept of self-efficacy be incorporated into an expanded Health Belief Model.

Within the family context, and because of their dependency on adults, "infants quickly learn how to influence actions of those around them by their social and verbal behavior. According to Bandura, this is crucial, because of research that demonstrated parents can create the development of their infant's efficacy by being "responsive" to "communicative behavior" and also creating "opportunities for efficacious actions by providing an enriched physical environment, freedom for exploration, and varied mastery experiences". According to the study cited, these strategies can result in greater rates of social, linguistic, and cognitive growth. Participation in guided mastery experiences, as mentioned above, is a key determinant in self-efficacy theory along with vicarious experience, verbal persuasion, and physiological and affective states. Result: According to Bandura's theory the two most powerful sources of self-efficacy are the learners' previous experiences with similar tasks and from observations.

Key words: parents, pediatric nurse, self efficacy

### **Management of low cardiac out put after pediatric cardiac surgery**

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Team work in is the only way of doing many jobs in our age. The prosperity and success of intensive care units is similar to music performance in concerts, it greatly depends on all players ,each of them are responsible for some aspects of that job and final result is derived by their personal performance in coordination with the whole team. In a pediatric cardiac surgery intensive care unit nurses play unique role in saving patient's life. As the only people who are constantly stand by at patient's bed ,they should be able to assess any abnormal situation quickly and know exactly when should call for help and what must do to keep patient's life safe before any damage happens. One of the current events in pediatric cardiac surgery units is Low cardiac output (L.C.O) syndrome. Since any delay in diagnosis or management of L.C.O can be fatal or cause serious damage, Nurses who work with post cardiac surgery patients have to know this syndrome and how to

manage it. This workshop is going to review sign and symptoms of L.C.O, risk factors of L.C.O after cardiac surgery, and most of all the management strategies used to cure this situation. The heart must pump blood around the circulation at a sufficient flow rate (cardiac output) to meet the body's metabolic needs. If cardiac function is impaired (a low cardiac output state), delivery of oxygen and other substances will be compromised. a sustained period of low cardiac output is associated with a high risk of multiorgan dysfunction, often encapsulated by the term low cardiac output syndrome (LCOS).The occurrence of LCOS is predictable in many situations, and its management must be proactive to ameliorate the potentially serious consequences of multiorgan dysfunction, which commonly include impairment of renal, hepatic and/or cerebral function.

clinical manifestations of LCO include slow capillary refill time, large core-peripheral temperature gradient and oliguria.hypotension may be present, but LCO can exist even in the absence of hypotension, as systemic vascular resistance may be elevated reduced cerebral perfusion may manifest as irritability in neonates and infants or confusion in older children. Risk factors that can lead to a L.C.O state in patients after cardiac surgery should be considered by nurses especially during first hours post surgery and nurses must be more vigilance while caring patients with risk factors. These predisposing factors are: long cardiopulmonary bypass time, residual lesions, long standing ischemia, dysrhythmia, low preload, high afterload and metabolic disturbances.

More over, nurses should monitor the patient's response to the conventional treatments of L.C.O. it is important to control metabolic requirements in L.C.O state; it is very common to use mechanical ventilation. Beside, maintaining enough fluid and electrolytes is crucial since fluid and electrolytes imbalance not only may deteriorate L.C.O state by initiating dysrhythmia ,it can affect preload and keeping fluid and electrolytes balanced will become more difficult when renal function impaired by insufficient blood supply. In some critical situation body temperature kept below normal range, In order to keep balance between metabolic demand and supply.

Inotropic support uses frequently in post operative period of cardiac surgery especially in L.C.O state. Patient's response to different inotropic agents should be closely monitored by nurses in these units. Nurses' Knowledge of inotropes, their usage, target receptors they affect and adverse effect help nurses to administer and monitor drug efficacy on the patient's situation. Knowledge of nurse about these agents in pediatric patients is crucial, while a little mis calculation in dosage can change the expected result and in some cases may cause serious injury.

Management of blood loss and assessment and control of tamponade are other aspects of caring L.C.O since it can lead or worsen this situation. Caring pediatric patients after cardiac surgery is a delicate process which needs enough academic knowledge about pediatric nursing, critical care and cardiac nursing. In coordination with the other members of critical care team, highly skilled nurses act successfully in managing difficult situation of children after heart surgery and continuous training about common problems in intensive care units help nurses to become more prepared for similar situations.

### **Neonatal Resuscitation Program (NRP) 2011**

*AKRAM DABIRIAN*

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In spring 2011, the American Academy of Pediatrics (AAP) will release sixth edition materials for the Neonatal Resuscitation Program (NRP). This edition brings changes in resuscitation practice and a new education methodology that shifts the instructor from “teacher” to “learning facilitator” and requires the NRP course participant to assume more responsibility for learning. The change from a lecture format to simulation-based learning requires instructors to learn new skills and meet new requirements to maintain instructor status.

The Neonatal Resuscitation Program is an evidenced based educational program that introduces the concepts and basic skills of neonatal resuscitation. The causes, prevention and management of mild to severe neonatal asphyxia are carefully explained so that health professionals may develop optimal knowledge and skill in resuscitation. Neonatal resuscitation skills are essential for all health care providers who are involved in the delivery of newborns. The transition from fetus to newborn requires intervention by a skilled individual or team in approximately 10% of all deliveries. Perinatal asphyxia and extreme prematurity are the 2 complications of pregnancy that most frequently require a complex resuscitation by skilled personnel. However, only 60% of asphyxiated newborns can be predicted antepartum. The remaining newborns are not identified until the time of birth. Additionally, approximately 80% of low birth weight infants require resuscitation and stabilization at delivery. Nearly one half of newborn deaths (many of which are extremely premature infants) occur during the first 24 hours following birth. Many of these early deaths also have a component of asphyxia and/or respiratory depression as an etiology.

### **Blood Transfusion: What You Need to Know**

*Leila Hashemi-Children's Medical Center*

Blood transfusion is a medical treatment, that involves the transfer of blood or blood products into the patient to compensate for any loss that occurred during a trauma, pregnancy-related complication, surgery or treatment of cancer and other diseases such as sickle-cell anemia. The blood goes through a tube from a bag to an intravenous (IV) catheter and into a vein. Every day lives are saved by blood transfusions. During a blood transfusion, whole blood or part of the blood such as red blood cells, white cells, platelets or plasma is transfused as needed. Using part of the blood is the most efficient use of available blood. According to the American Red Cross, red blood cells transfer oxygen to the cells; white blood cells are needed for a healthy immune system; platelets help to control bleeding; and plasma helps in the transportation of the blood around the body. However, it is increasingly clear that such therapy has limitations, and that the decision to transfuse must be made with great care. As well as the need to regularly review the evidence for the risks and benefits of any practice, there are several factors driving the

move towards the most appropriate use of blood components.

### **THE PRESCRIPTION OF BLOOD COMPONENTS**

*Tahmineh Naji -Children's Medical Center*

The prescription of blood and blood components is the responsibility of a doctor (or midwife or nurse practitioner licensed to prescribe blood components). The prescription sheet shall contain the full patient identification details and specify :

The type of blood component, including any special requirements (eg. Irradiation, CMV Neg, etc).

The quantity. The duration of transfusion. Any special instructions (eg. Any medication required before or during the transfusion). The prescription constitutes the legal instruction to administer the blood product. The prescribing clinician shall also document the following in the patient's medical record :The transfusion decision rationale based on recognised clinical practice guidelines. The outcome of the transfusion including whether or not it achieved the desired effect and the occurrence and management of any adverse effects. Consideration should be given as to the risks and benefits of transfusion and whether any alternative treatments are suitable.

### **What are Vascular Access for blood transfusion?**

*Mahrokh Goldoust -Children's medical center*

A vascular access procedure involves the insertion of a flexible thin plastic tube, or catheter, into a blood vessel to provide an effective method of delivering blood into a patient's bloodstream.

A simple intravenous (IV) line is effective for short-term use, but is not suitable for long-term use. When an IV line is necessary for a longer period of time and/or a more secure venous access is necessary, a special catheter that is generally longer, called a central access catheter, or a similar device can be used. The catheter can remain in place either temporarily (days) or long-term (weeks to years) so that it can be easily and repeatedly accessed over the necessary period of time.

In a vascular access procedure, a special catheter is inserted inside a major vein (generally in one of the large veins in the neck, arms or legs) with the tip of catheter positioned into a large central vein that terminates near the heart.

Venous access plays a major role in current medical practice where access to a vein is needed over a long period of time. Central venous catheters serve many purposes, including the delivery of medications (such as antibiotics, chemotherapy drugs and narcotics), and administration of blood products.

## Miscellaneous Abstracts-2

### Changes in urinary parameters after combination oral administration of magnesium chlorides and potassium citrate in pediatric with calcium oxalate urolithiasis in order to prevent urolithiasis

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**Background:** Potassium citrate (K Cit) is commonly prescribed on patients with calcium oxalate urolithiasis but doesn't make significantly change in recurrence of many patients; moreover calcium oxalate (Ca Ox) stones haven't enough response to alkaline pH alone, so combination therapy seems necessary. On the other hand using of Magnesium as magnesium chloride (MgCl<sub>2</sub>) in order to combination therapy with KCit (in therapeutic dose was permitted in pediatric) can stable anion composition of urine. Our goal was to evaluate the effect of KCit and MgCl<sub>2</sub> combination as oral supplement in urinary parameters in pediatrics with idiopathic Ca.Ox urolithiasis in comparison with KCit alone as a routine treatment. **Method:** 25 pediatric patients affected by idiopathic calcium oxalate urolithiasis were randomly assigned to receive either KCit therapy alone and after that combination of KCit and MgCl<sub>2</sub> therapy. First of all a blood and Twenty-four-hour urine samples were obtained as primary phase (0). Then KCit was prescribed as first phase (1) for 4 weeks, the second phase (2) was orally usage of combination of KCit and MgCl<sub>2</sub> for 4 weeks. At the end of these two Twenty-four-hour urine samples will be checked, and blood sample will be obtained at the end of second phase.

**Result:** At this study the urinary Citrate / Creatinine ratio of phase 1 and phase 2 have significantly increased (mean 0.025 vs. 0.043 and,  $P < 0.05$ ). Additional significant ( $P < 0.05$ ) differences were found between phase 1 and phase 2 urinary oxalate (mean 0.31 vs. 0.27 mM/l) and also phase 0 and 2 urinary oxalate and oxalate/creatinine ratio. Urinary phosphate and citrate were higher in phase 1 and 2 comparing with phase 0,  $p < 0.05$ . Ca.Ox index decreased dramatically in phase 1 and 2 comparing with phase 0. While, Ca.Ph index increased significantly. Although magnesium/creatinine ratio and magnesium/calcium ratio rose in phase 2 comparing with phase 0, the increments were not significant.

**Conclusions:** These results suggest that the composition of potassium citrate and Magnesium chloride as treatment or prevention of recurrence of idiopathic calcium oxalate in pediatric could be more effective than composition of potassium citrate alone.

**Keywords:** urolithiasis, pediatrics, potassium citrate, Magnesium chloride

### Developmental reflexes in newborns

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Developmental Reflexes Gross motor abilities of the newborn infant can be partially evaluated by observation. The head is preferentially turned to the right for longer

periods than to the left. Term infants have predominant flexor tone, with resultant flexion of the arms at the elbows and of the legs at the knees. Bilateral fisting of the hands, including adduction and infolding of the thumbs (i.e., cortical thumbs), is expected. Limb position and posturing should be roughly symmetric. Developmental reflexes are primitive reflexes with complex responses and largely reflect the integrity of the brainstem and spinal cord. Occasionally, they may have localizing value, but usually, they do not. Many of these reflexes are present at birth and undergo modification during the first 6 months of life. General development of the nervous system can be assessed by eliciting these reflexes. The abnormalities may be the continued presence of a reflex that should have dissipated, absence or poor manifestation of the expected response, or a response that is not symmetric. Their persistence beyond the expected date of dissipation suggests maturational lag or impaired CNS function. This group includes the Moro, rooting, grasping, tonic neck, stepping, and placing reflexes. Generalized diminution of the manifestation of these reflexes suggests diffuse depression of brain function. Asymmetry indicates central or peripheral nervous system dysfunction that must be further localized.

**Keywords:** primitive reflexes, developmental reflexes

### The Role Of Speech & Language pathologist In Feeding-Communication Disorders of infants

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It is well established that the survival of preterm infants has greatly increased over the last 20 years. Preterm infants frequently experience oral feeding difficulties because of their underdeveloped cardiorespiratory system, central nervous system and oral musculature. Adequate growth in infants, defined by weight gain in early infancy and for the first few years of life, is the primary measure of successful feeding. Feeding, swallowing and respiration are activities that occur in the upper aerodigestive tract and are orchestrated by specific areas in the brain and cranial nerves. Successful oral feeding requires that children have functional oral sensorimotor and swallowing skills, central nervous system integration and musculoskeletal tone. Successful emergence of communication skills relates to successful feeding and swallowing. Normal feeding patterns reflect the early developmental pathways that are the basis for later communication skills. The interrelationships between feeding (in all living beings) and complex verbal communication (unique to humans) are multifactorial and in need of continued research. Feeding and swallowing disorders are relatively common in early infancy and in some instances may be markers for significant health implications that do not become obvious until later. Feeding problems are relatively common in various infant populations, including, but not limited to, preterm "at risk" infants, infants with congenital heart disease following open-heart surgery, infants diagnosed with nonorganic failure to thrive, and children with cerebral palsy (CP). Speech and language pathologists use various intervention techniques to facilitate the oral feeding process

of infants and children. One of the most common strategies use consists of sensorimotor input, such as tapping or stroking the cheeks, lips, gums and tongue and using a “Nuk” brush or other kinds of stimulation.

**Keywords:** preterm infant, communication disorder, speech therapy, feeding disorder

### **Impact of parental smoking, alcohol and drug use on the childhood leukemia**

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**Background:** Acute leukemia is the most common malignancy in childhood. The aim of this study was to document the impact of parental smoking, alcohol and drug use on the childhood leukemia. Method and Material: This study was conducted in Tabriz Children university-hospital. The study included 68 childhood cancer cases (<15 years of age) and their individually matched 82 control subjects. Information concerning parental smoking, alcohol consumption and use of drug and medicine was gathered by direct interview and patient medical records. Packet Per Year (PPY) index for smoking was calculated using the data obtained from parents. Findings: The average PPY of fathers were 161.6 and 68.7 (packets) in the case and control groups, respectively ( $p=0.004$ ). The rate of fathers routine alcohol consumption in case group was 4.5 percent compared to 1.2 percent in control subjects (Odds Ratio=3.75,  $P=0.215$ ). Three percent of fathers in case group recorded as drug users while there was no drug user in control group. None of mothers in case and control groups reported smoking, alcohol and drug use. There was no statistically significant association between consumption of medicine and the occurrence of childhood leukemia. Conclusion: Our findings showed that the childhood acute leukemia was correlated with paternal smoking and drug use. This indicates that fathers should also be involved in maternity health care before and during pregnancy. More studies are needed to confirm the association of paternal and maternal influencing factors on the occurrence of leukemia in children to develop effective preventive strategies for maternity health care.

**Keywords:** Acute leukemia, smoking, drugs, alcohol

### **Tone, posture and postural reactions in neurologic examination of infants**

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Tone, posture and postural reactions in neurologic examination of infants The evaluation of posture, muscle tone, primitive reflexes, and postural reactions are integral parts of the neurologic examination of the infant in the first year of life. Posture or muscle tone disturbances during the first 12 months of life in high-risk infants are not always prognostic of the later diagnosis; some of these infants are normally developed, whereas others have various types of cerebral palsy or developmental retardation without motor disturbance. The same is true for motor milestones such as sitting, pulling to stand, and standing, they represent the

basis for formulating locomotor prognosis in individual patients with cerebral palsy; but, they do not contribute to an early diagnosis (i.e., in the first 6 months of life). In such cases, examination of primitive reflexes or postural reactions has been advocated to serve as a screening test for postural abnormalities, especially cerebral palsy. Infants with cerebral palsy have been known to demonstrate persistence of primitive reflexes or a delay in their disappearance. Persistence of obligatory primitive reflexes beyond 12 months of age is an indicator of a poor prognosis regarding ambulation. Researchers have emphasized the distinction between primitive reflexes and postural reactions. Postural reactions are not true reflexes, but rather are based on multiple input modalities, usually acting as a whole; postural mechanisms require cortical integrity and thus are incompletely present in the neonate, but instead develop postnatally. A number of postural reactions have been identified and described as diagnostically relevant to motor delay. The mostly used postural reactions, are three righting reflexes in prone position: the tonic labyrinthine reflex, symmetric tonic neck righting, and the Landau reaction (vertical suspension). However, different postural reactions are used preferentially by different investigators, for example some focuses on vertical suspension, parachute reaction, arm protection, and lateral tilting, whereas others use neck righting, parachute or protective extension, and the Landau reaction. And some utilizes the traction response, vertical suspension, and the Landau reaction.

**Keywords:** tone, posture

### **The benefits of early detection and the costs of undetected developmental disorders**

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For children with developmental delays or neurologic insults such as IVH, or those with high risk factors such as VLBW (<1500g), three different scenarios exist: 1- They may die due to the severity of the insult. 2- The insult may be severe enough to cause challenges for therapy, for example convulsions may develop as a response to routine therapeutic interventions. 3- The child may benefit significantly from appropriate and scientific early neuro-rehabilitative interventions. It is important to note that appropriate and scientific early neuro-rehabilitative interventions target the brain and the brain-stem, and not the repair of skeletal muscles or their function. In fact such interventions are based on the neuroplastic nature and capability of the young brain. For example, even if early intervention gives a child with brain insult such as C.P. the ability to walk; this will not be achieved directly through changes in muscle activity, but rather through motor learning of the brain. Due to involvement of the brain and brain-stem in early neuro-rehabilitative interventions, such interventions can also cause improvements in the child's cognitive and communicative development as well. Since the major part of early neuro-rehabilitative interventions have to be provided by parents at home, this provides the opportunity for involvement of parents and thus the strengthening of attachment bonds with the child, as well as lower costs for the family. When intervention is delayed, that is provided after 2 years of age, the primary brain insult eventually causes complications such as scissor gait, tip toeing, continuous flexion of the arms, fisting of the hands and pathologic reflexes to occur, which means that

rehabilitation will be more difficult and time-consuming and costly after this stage. At this stage rehabilitation has to be offered at least 3 days a week in 3-4 sessions each day, and only at the location of the rehabilitation center. The outcome for the child will be uncertain and will have a fluctuating nature. Other specific interventions will be needed for the cognitive, communication and attention deficits from which the child usually suffers simultaneously. This further aggravates the situation for the family and the child. Some practical examples based on personal experience will be offered at the conference.

### Frequency of hypothyroidism among patients with beta thalassemia and its association with the serum ferritin level

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**Background:** Prevention programs are considered to be a top priority in Iran because beta thalassemia major is the most common autosomal disorder in Iran. Despite improved hematologic care, multiendocrine dysfunction is a common complication of homozygous transfusion dependent beta thalassemia. Accordingly this study was performed to determine the frequency of hypothyroidism among patients with beta thal. & its association with the serum ferritin level. **Material & methods:** in this cross-sectional study 70 patients with beta thal. were consecutively enrolled. serum levels of ferritin were measured & thyroid function was assessed by T3, T4, TSH. independent sample T-Test & Chi-square tests were used for data analysis by SPSS software. **Results:** normal thyroid hormone values were found in 68 (97.1%) of the patients. mean ferritin levels in hypothyroid & euthyroid patients were 2698.5 mg/l and 3001.9 mg/l, respectively. ( $p < 0.05$ ) indicating statistically significant association between serum ferritin levels & thyroid functional status. **Conclusions:** totally, it may be concluded that regular iron chelation therapy should be advised for patients with beta thal. to prevent thyroid dysfunction. in addition, therapy with levothyroxin should be considered in iron overloaded patients with a poor response to chelation therapy & in patients with iron overloaded.

**Keywords:** beta thalassemia, ferritin, hypothyroidism

### Feasibility study of laparoscopic redo pyeloplasty after failed open surgery

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**Background:** The treatment options for patients with failed prior open pyeloplasty continue to grow. We report our experience in treating these patients by transperitoneal laparoscopic pyeloplasty.

**Methods:** We reviewed the records of all patients who had undergone transperitoneal laparoscopic pyeloplasty as salvage for failed prior open retroperitoneal pyeloplasty between Feb 2005 and Jan 2008. Diagnosis of persistent obstruction was made by diuretic renal scan +/- intravenous urography. All procedures were performed by a single team. Depending on the anatomic situation, either dismembered or a flap technique was utilized. Subsequent

follow-up was documented by ultrasonography initially, and performing diuretic renal scan with or without intravenous urography at least 12 months after the reoperation. Preoperative findings and follow-up results were assessed.

**Result:** Eleven patients (7 male and 4 female) aged 41.4 years on average (range 27-55) were reviewed. Mean operative time was 205 minutes (range 165-250). Mean hospital stay was 3.6 days (range 3-5). At follow-up of 12-42 months (24.1 on average) overall success rate was 90.9%. Only one female patient developed dull flank pain 3 months after stent removal. There was no conversion to open surgery. None required blood transfusion or experienced major complications.

**Conclusion:** Based on this case series, laparoscopic pyeloplasty can be a valid and feasible option in treating patients with failed prior open pyeloplasty.

**Keywords:** laparoscopy, UPJO, pyeloplasty, anderson hynes, dismembered, salvage, secondary, hydronephrosis

### Global Measles Eradication, Would it be feasible?

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The current global goal, established in the Global Immunization Vision and Strategy, is that by 2010 or earlier, mortality due to measles will have been reduced by 90% in comparison with the estimated 2000 levels. Global mortality due to measles has been reduced by 78%, from an estimated 733 000 deaths in 2000 to an estimated 164 000 deaths in 2008. All WHO regions have already achieved this goal, with the exception of the South-East Asia Region, but within that Region it has been achieved by all countries except India. In 2008, global routine coverage with the first dose of Measles-containing vaccine reached 83%, an increase from 72% in 2000. In 2008, more than 110 million children received measles-containing vaccine through supplementary immunization activities in the 47 priority countries identified as having a high measles mortality burden in 2000. Before setting a goal for measles eradication, the following requirements should be met: (a) it is biologically feasible; (b) it is programmatically and operationally feasible; (c) there is a sufficient supply of high-quality vaccines; (d) it is cost effective, and the scale of resources required is recognized; (e) eradication activities are designed to contribute to the strengthening of health systems and are synergistic with other child health programmes; and (f) there is sufficient political and financial commitment by Member States supported by a broad-based partnership of major public health agencies and donors. **Conclusion:** In November 2010, WHO concluded that measles can and should be eradicated, but that it was premature to set an eradication date. The eradication of measles represents a unique disease control and developmental opportunity and should be carried out in the context of strengthening routine immunization. In addition, the programme efficiencies of using combined measles-rubella vaccine and integrated fever-rash surveillance provide an opportunity for measles eradication activities to accelerate rubella control and the prevention of congenital rubella syndrome. WHO requested ongoing monitoring of progress against the 2015 global targets and existing regional measles elimination goals, measurable

progress being required for the establishment of a date for achieving measles eradication.

**Keywords:** Measles, Global, Eradication

### A practical approach to the child with acid-base disorders

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A metabolic acidosis can be characterized by increased plasma bicarbonate and a compensatory decrease in arterial PCO<sub>2</sub>. The respiratory compensation for a metabolic acidosis is hyperventilation and an appropriate decrease in arterial PCO<sub>2</sub> to minimize the acid-base disturbance. The diagnosis approach to metabolic acidosis utilizes information from the history and physical examination and laboratory studies in a stepwise fashion. Diagnosis of underlying causes of metabolic acidosis can be simplified by determining whether the disorder is associated with an increased or normal anion gap. The response of the respiratory system is predictable because there is a linear relationship between PCO<sub>2</sub> and serum bicarbonate concentration. In simple metabolic acidosis for each mEq decrease in bicarbonate there is a 1.2 mEq decrease in the arterial PCO<sub>2</sub> ( $\Delta\text{PCO}_2 = 1.2 \Delta\text{HCO}_3^-$ ). If patient's PCO<sub>2</sub> is above or below the predicted range a primary respiratory acidosis or a primary respiratory alkalosis coexists, respectively, in addition to the primary metabolic acidosis. Metabolic alkalosis is the result of an increased plasma bicarbonate concentration. The respiratory compensation for metabolic alkalosis is hypoventilation and the arterial PCO<sub>2</sub> increases. The relationship between plasma bicarbonate and PCO<sub>2</sub> in metabolic alkalosis is also predictable. A 1mEq/L increase in plasma bicarbonate concentration should result in a 0.6 mmHg increase in arterial PCO<sub>2</sub> ( $\Delta\text{PCO}_2 = 0.6 \Delta\text{HCO}_3^-$ ). If the patients' PCO<sub>2</sub> agree with the predicated changes, a single disorder is most likely. If they do not, more than one disorder should be considered (mixed disorder). Measurement of urinary chloride is useful in the differential diagnosis of metabolic alkalosis. The urinary chloride concentration is typically <15 mEq/L with hypovolemia and chloride depletion due to surreptitious vomiting or diuretic use. In contrast, high values are seen in Barter syndrome, primary hyperaldosteronism, Gittelman syndrome, and Liddle syndrome. This presentation will discuss a problem-solving approach to clinical cases involving acid-base disorders.

**Keywords:** Metabolic acidosis, Metabolic alkalosis, Respiratory compensation

### Interpretation of the arterial blood gas

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Acid-base evaluation requires a focus on three components of the arterial blood gas including pH, PCO<sub>2</sub> and HCO<sub>3</sub><sup>-</sup>. Respiratory acidosis is defined as a pH <7.35 with a PCO<sub>2</sub>>45 mmHg. Any condition that results in hypoventilation can cause respiratory acidosis. Respiratory alkalosis is defined as a pH >7.45 with a PCO<sub>2</sub> <35 mmHg. Any condition that causes hyperventilation can result in respiratory alkalosis. Metabolic acidosis is defined as a

bicarbonate level <22 mEq/L, with a pH <7.35. Metabolic acidosis is caused by either a deficit of bicarbonate in the blood or an excess of acid, other than CO<sub>2</sub>. Metabolic alkalosis is defined as a bicarbonate level >26 mmHg/L with a pH >7.45. Either an excess of base or loss of acid within the body can cause metabolic alkalosis. The evaluation of blood gas can be simplified in a stepwise fashion. First is, to assess the pH to determine if the blood is acidotic, alkalotic or normal. Second is, to determine if it's caused primarily by a respiratory or metabolic problem. Third is, to assess the bicarbonate value. If the pH and PCO<sub>2</sub> are moving in opposite directions, the problem is primarily respiratory in nature. If the pH and bicarbonate are moving in the same direction, then the problem is primarily metabolic in nature. In simple acid-base disorders, the pH is near normal and usually falls either on the low or high end of normal value (7.40). In mixed acid base disorders, the pH is frequently outside the normal range (<7.35 or >7.45). The following equations are useful to determine whether the metabolic or respiratory compensation is appropriate to differentiate simple from mixed acid-base disorders: acute respiratory acidosis ( $\Delta\text{HCO}_3^- = 0.1 \Delta\text{PCO}_2$ ); chronic respiratory acidosis ( $\Delta\text{HCO}_3^- = 0.3 \Delta\text{PCO}_2$ ); acute respiratory alkalosis ( $\Delta\text{HCO}_3^- = 0.2 \Delta\text{PCO}_2$ ); chronic respiratory alkalosis ( $\Delta\text{HCO}_3^- = 0.4 \Delta\text{PCO}_2$ ); metabolic acidosis ( $\Delta\text{PCO}_2 = 1.2 \Delta\text{HCO}_3^-$ ); metabolic alkalosis ( $\Delta\text{PCO}_2 = 0.6 \Delta\text{HCO}_3^-$ ).

**Keywords:** Metabolic acidosis, Metabolic alkalosis, Respiratory compensation

### Post-transplant complications Dental abnormalities after pediatric bone marrow transplantation

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Hematopoietic stem cell transplantation (HCT) has an established role in the treatment of childhood malignancies due to increased survival rates. As more children survive, clinical studies on late effects and development of supportive care programs have become important for addressing current health problems and for determination of needs for prevention of complications. Late effects of chemotherapy and radiotherapy on the craniofacial development have become apparent due to improved survival in pediatric BMT recipients. Stem cell transplantation (SCT) has an established role in the treatment of selected malignant and nonmalignant diseases in children. High-dose chemotherapy (HDC) and total body irradiation (TBI) used in the preparative regimens for SCT give rise to multiple, well known, acute and long-term adverse effects, also involving teeth. The extent and severity depend on patient's age at the time of initiation of treatment, and the protocol used (chemotherapy alone or in conjunction with radiotherapy). The younger the child is at the beginning of treatment (especially before six years of age), the greater the risks for craniofacial and dental disturbances. Abnormalities described included tooth agenesis, hypodontia, microdontia, enamel hypoplasia, narrowing of the pulp canal, malformed roots, delayed eruption and primary tooth retention, impaired salivary function, increased risk to dental caries, as well as disturbances in craniofacial growth and a higher risk to develop secondary oral tumors. Complications affecting the mineralized dental tissues are typically irreversible and may affect the quality of life permanently. More insight

into the prevalence of these late adverse effects and factors associated with the risk for development of these complications is important to determine the need for dental care in long-term follow-up programs

**Keywords:** stem cell transplantation, late adverse effects, tooth agenesis, hypodontia, microdontia, enamel hypoplasia

### **The impact of neonate position on endotracheal tube bacterial colonization at neonatal intensive care unit: a comparative study**

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**Background:** Respiratory contamination is a pivotal problem during mechanical ventilation at neonatal intensive care unit. This study attempted to compare the bacterial colonization of endotracheal tube between neonates with supine and lateral position.

**Methods:** we conducted a prospective, randomized, clinical trial with neonates who admitted in neonatal intensive care unit of 17 Shahrvivar children's hospital, Rasht, Iran. They had the following including criteria: gestational age of >28 weeks, tracheal intubation at postnatal age of <48 hours, mechanical ventilation for >5 days. Infants were diagnosed as having congenital sepsis or pneumonia or congenital anomalies were excluded. 31 eligible subjects: Sixteen of them were positioned supine, and the remaining was maintained in lateral position. Tracheal aspirates were cultured in second and fifth days of mechanical ventilation.

**Results:** In the second day of ventilation, positive cultures were reported in 6.2% and 6.7% of supine and lateral groups, respectively. After 5 days of mechanical ventilation, tracheal aspirates cultures differed significantly between two groups: 25% of supine group and 13.3% of lateral group. Gram-negative rods (*Klebsiella*) were the most common organisms isolated from tracheal aspirates.

**Conclusion:** According to our data, about fifty percent decrease in endotracheal bacterial colonization was observed in neonates who positioned laterally. Regarding, the high incidence of respiratory contamination in neonates receiving mechanical ventilation, alteration of patient's position, as a practical and safe method should be considered to decrease endotracheal tube colonization in intubated neonates at intensive care unit.

**Keywords:** Neonates, Endotracheal tube, Colonization

### **Does teething cause systemic upset ?**

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**Background:** The relationship between the eruption of the deciduous teeth and the general health of infants has been documented for over 5,000 years. The appearance of an infant's first tooth is regarded by most parents as one of a series of significant developmental landmarks.

**Methods:** The Medline (Internet Grateful Med), and CINAHL databases were searched using the key words: 'infant', 'teething', 'symptoms' and 'signs', to identify English language reports of systematic reviews, cohort studies, case-control studies, case series and secondary reviews investigating the symptoms and signs that are associated with teething. Four cohort studies, four surveys of parents

with children around the teething age, one case-control study, and one case report<sup>18</sup> were identified.

**Results:** Considerable variability exists in the presence or absence of teething-associated symptoms, up to 75% of infants may experience at least one of the following symptoms mentioned as conclusion, on eruption of the anterior deciduous dentition, the corresponding figure being 100% for the posterior teeth.<sup>12</sup> Carpenter (1978)<sup>14</sup> found that in 120 subjects, during the eruption of the mandibular deciduous central incisor teeth, 39% exhibited one of several symptoms (fever, vomiting, diarrhoea, drooling, irritability, facial rashes or rhinorrhoea), and of the six children that were followed-up for 6 months or greater; the symptoms disappeared on either the day of, or the day after eruption of the tooth.

**Conclusion:** It is now generally accepted, that the eruption of the deciduous teeth is accompanied by symptoms like drooling, chin or face rash, coughing, biting, pain, irritability, refusal to feed, diarrhea, low-grade fever, gum hematoma, wakefulness, ear pulling; and cheek rubbing. Although many of the conditions historically thought to result from teething are now accurately diagnosed as specific clinical entities, the enigma of teething continues to endure as a somewhat wastebasket diagnosis, when no cause can be found for a particular sign or symptom.

**Key words:** infant, teething, symptoms and signs

### **Experience with a rapid response system at the hospital for sick children in Toronto**

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In 2006, a Paediatric Rapid Response System was established at the Hospital for Sick Children in Toronto. The purpose of this presentation is to share with the audience the collective experience of this team over the last 6 years. This team included experienced ICU nurses and physicians with later addition of paediatric residents. The mandate of the team was to respond in a timely manner (2-5 min) to all calls for help from any of the clinics and wards of the Children's Hospital outside the Intensive Care units, the emergency room, and the operating rooms. They have also been attending to all Code Blue's at the Hospital. The team collect a set of data on each and every activation and review the effects the team has had on the Code Blue rate, readmission within 48 hours to the ICU, and on Hospital mortality. Also in repeated surveys they assess the satisfaction rate in the health care providers Hospital wide who are the users of this service. On average, the Rapid Response Team respond to 700 new activations and follow more than 2000 patients post discharge from the intensive care unit annually. There is also an "extramural" activity of this team that respond to all calls for advice or transport from outside institutions. Now, after 5 years, we have shown that the satisfaction of the staff at the Hospital wide level has consistently been above 90%. Having a Rapid Response System has not led to a decrease in the readmission rate to the intensive care unit but has led to a significant drop in mortality of patients who need to be admitted urgently from the Hospital wards to the intensive care unit. The Code Blue rate has not changed. Every institution need to decide which model of Response Team suits their local condition and problems best. Definitely these team provide education for the ward staff and help the nursing and junior staff feel empowered but to improve upon the effects and changes a Rapid Response Team can

have, we need to better identify areas that need intervention and use the skills of this team in a more focused way.

**Keywords:** Rapid Response Team, MET, Patient Safety, Outreach Team

### Evolution of medical management of congenital diaphragmatic hernia (cdh) at the hospital for sick children in Toronto

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Over the last 30 years, the survival in Congenital Diaphragmatic Hernia (CDH) has increased from approximately 50% to 90%. This improvement in survival has been due to many factors, some of which are: better understanding of the pathophysiology, hence better stabilisation of these neonates prior to surgery, delayed surgery, and improved post operative care. Avoidance of injurious mechanical ventilation and advances in management of pulmonary hypertension, early employment of High Frequency Oscillation (HFOV) have contributed to this success in the paediatric intensive care unit. The purpose of this presentation is to briefly review the evolution of intensive care in this disease and current strategies at the Hospital for Sick Children in Toronto in management of neonates with Congenital Diaphragmatic Hernia.

**Keywords:** Lung Hypoplasia, Pulmonary Hypertention, Congenital Diaphragmatic Hernia, High Frequency Oscillatory Ventilation

### Prevalence of Metabolic Syndrome and association of BMI and Sleep duration with Metabolic Syndrome in children of Qazvin

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**Background:** obesity and the Metabolic Syndrome have been increasing in most parts of the worlds. They increase the risk of cardiovascular disease and diabetes. Short or long sleep duration is associated with an elevated prevalence of Mets in adults, but the association of them in children is not completely clear. The purpose of this study was to examine the prevalence of Mets among children and determine the association between childhood obesity, sleep duration and Mets.

**Methods:** A cross – sectional study conducted among 338 Children (166 males and 172 Females) in age group 10 - 18 years in Qazvin, 2011. BMI, waist circumference, Blood Pressure, Lipids, insulin and glucose Levels were determined. The children were divided in 3 groups by sleep duration: Short Sleep (< 8 hours), normal ( 8-10 h), and long sleep duration (>10 h). Criteria analogous to IDF were used for diagnosis of Mets in children.

**Results:** Among 338 children aged 10-18 years overweight, obese and normal weight were 11/4%, 5/5% and 83/2% respectively .The prevalence of metabolic syndrome was 3/6% overall (50% in obese, 40% in over weight and 10% in normal BMI) .It means that BMI was significantly associated with metabolic Syndrome (P<0.001) . Short Sleep, normal and long sleep duration were 19.9%, 62.5% and 17.6% respectively. There was no significant

association between sleep duration with metabolic syndrome in 3 groups.

**Conclusions:** Approximately 3/6% of all and 50% of obese subjects met the criteria for the Mets, BMI were strong predictors of Mets in children. Sleep duration had not significant association with Mets. Therefore rigorous obesity prevention should be implemented by intervention in lifestyle.

**Keywords:** Metabolic syndrome, BMI, sleep duration, children

### Evaluation of a New Technique in Polyorchidism surgery

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**Backgrounds:** Polyorchidism is a rare congenital anomaly with about 200 cases reported in the literature. In this article we present seven cases of polyorchidism happening in our institute between 1992 to 2007 and follow up them. We propose to evaluate a surgical approach of vaso-epididymal approximation to restore the near normal anatomy plus stabilization of testis and ductal system.

**Results:** basis of our patients follow up, in cases of contra lateral anorchia or atrophic testis, a super numerary testis may fairly replace the contralateral counterpart (vaso-epididymal approximation).

**Conclusion:** Actually a careful pursuit of vessel and vasal route during UDT surgery, judicious use of laparoscopy and lower threshold of diagnosis both in imaging and while surgery may make us encounter more cases of polyorchidism in daily practice of pediatric urology. Consequent to diagnosis, vaso-epididymal approximation as a new method of surgery in Poly orchidism can decrease the rate of infertility.

**Keywords:** Polyorchidism, vaso-epididymal approximation

### Role of Medical Therapy in Pediatric Urolithiasis

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Urolithiasis is a universal medical problem. It is also a common urologic problem in Iranian children. Although its etiology in some cases is obscure and unknown but metabolic derangements, urinary tract infections and obstructive factors are among its most important etiologies. Variety of factors play a role in production and formation of stones. Metabolic risk factors such as hypercalciuria, hyperoxaluria, hyperuricosuria, increase in urinary acidity, decrease in factors that prevent stone formation such as citrate, magnesium and glycosaminoglycans are important in stone formation. Nutritional disorders that cause increased excretion of sodium in urine and decreased urine volume, like increased salt intake and/or decreased water intake also influence stone production and formation. In rare instances, cystine excretion and alkalization of urine caused by urease producing microorganisms are causes of stone formation. Despite development of new surgical techniques( i.e. endourologic techniques and extracorporeal shock wave lithotripsy[ESWL]) which have made treatment more

simple with less risk to patients, but nonsurgical (medical) treatment still has major and complementary role specially since last decade. Nonsurgical therapy with constructed and rational biochemical, chemical and physical changes in urine decrease risk of stone formation. Use of medications such as Thiazides, potassium citrate, potassium, magnesium and allopurinol are important in prevention of stone formation. Recent researches in adults has shown that use of medicines (nifedipin and alpha blockers) are effective in treatment of expulsive ureteral stones, therefore, there is a hope that in the future with use of above mentioned treatments, improved diet and change in way of life, stone formation which is an important cause for renal failure be prevented.

**Keywords:** urolithiasis, children, pediatric, medical therapy

### Prevention of recurrent nephrolithiasis

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Management of renal stones constitutes treatment of acute episode (pain relief, facilitating stone passage) and prevention of recurrent nephrolithiasis (identification and treatment of risk factors). About 30% of patients experience relapse. Prevention of recurrent nephrolithiasis include general and specific treatments directed upon identification and treatment of the underlying metabolic disorder.

**Keywords:** nephrolithiasis, pediatrics, prevention

### Encephalitis due influenza a (H1N1) in a seven year-old girl with good response to oseltamivir

*Farhad Abbasi<sup>1</sup>, Davood Yadegarynia<sup>2</sup>, Sharareh Gholamin<sup>2</sup>, Soolmaz Korooni<sup>3</sup>, Mostafa Razavi<sup>2</sup>*

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**Background:** Human infection with the novel H1N1 influenza virus was first reported in April 2009. Novel Influenza A (H1N1) virus produces higher mortality in young people. Different clinical manifestation of Influenza A (H1N1) has been reported. We present encephalitis due influenza A (H1N1) with good response to oseltamivir.

**Case Description:** The patient was a seven year-old girl presented with mood change and gait ataxia from 5 days before admission. She also had fever, delusion, and lethargy. She had history of common cold several days before admission. She was treated with acyclovir with impression of encephalitis without improvement. In physical examination (P/E) she was febrile, there was no nuchal rigidity. P/E of chest, abdomen and extremities were normal. Lumbar puncture was performed. Cerebrospinal fluid (CSF) was normal. CSF culture showed no growth after 48h. CBC, FBS, BUN, Cr, Na, K, ALT, AST, CRP and procalcitonin were all normal. HSV PCR was negative. Electroencephalography (EEG) was done that suggested encephalitis. Brain MRI was normal. Throat culture was obtained for the diagnosis of influenza A (H1N1) that was positive. The patient was treated with oseltamivir. The patient recovered after treatment and tests for equilibrium

became normal. Encephalitis due to influenza A (H1N1) should be considered in every patient with signs and symptoms of encephalitis during influenza A (H1N1) pandemy.

**Conclusion:** Encephalitis due to influenza A (H1N1) should be considered in every patient with signs and symptoms of encephalitis during influenza A (H1N1) pandemy.

**Keywords:** Encephalitis, influenza A, H1N1, oseltamivir

### Evaluation of some effective factors on the duration of breast feeding

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**Background:** Nutrition is crucial for health and physiological needs of the infant. Breastfeeding is the ideal method in this way. The purpose of this study was to assess the duration of breast feeding and also evaluate the of some factors on this period in infants of zanjan city.

**Methods:** This cross-sectional study was carried out from may 2009 to may 2010.400 mothers, whose babies were between 12-24 months of ages who had been selected through cluster random sampling from health centers of zanjan city. The tools of measurement was a questionnaire. The data were classified and analysed by SPSS software.

**Results:** The finding of the research showed that there wre meaningful crrelation between variables of age, occupation of mothers and fathers, age at delivery, instruction advantages of breast feeding, times of breast feeding and the duration of sucking in one day, weight at birth, the time of first breast feeding after delivery, and the time of starting formula and aid-feeding to the baby, and quality of baby's nutrition during hospitalization (P value<0.05) and the duration of breast feeding.

**Conclusion:** According to the finding of the research, many factors affect duration of breast feeding. The period of breast feeding could be increased by attention to these factors.

**Keywords:** breast feeding, duration of breast feeding, infants

### Sensory Integration Disorder (Diagnosis and treatment)

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Sensory integration disorder or dysfunction (SID) is a neurological disorder that results from the brain's inability to integrate certain information received from the body's five basic sensory systems. These sensory systems are responsible for detecting sights, sounds, smell, tastes, temperatures, pain, and the position and movements of the body. The brain then forms a combined picture of this information in order for the body to make sense of its surroundings and react to them appropriately. The ongoing relationship between behavior and brain functioning is called sensory integration (SI), a theory that was first pioneered by A. Jean Ayres, Ph.D., OTR in the 1960s. The presence of a sensory integration disorder is typically detected in young children. While most children develop SI

during the course of ordinary childhood activities, which helps establish such things as the ability for motor planning and adapting to incoming sensations, others' SI ability does not develop as efficiently. When their process is disordered, a variety of problems in learning, development, or behavior become obvious. The neurological disorganization resulting in SID occurs in three different ways: the brain does not receive messages due to a disconnection in the neuron cells; sensory messages are received inconsistently; or sensory messages are received consistently, but do not connect properly with other sensory messages. When the brain poorly processes sensory messages, inefficient motor, language, or emotional output is the result. In order to

determine the presence of SID, an evaluation may be conducted by a qualified occupational therapist. An evaluation normally consists of both standardized testing and structured observations of responses to sensory stimulation, posture, balance, coordination, and eye movements. These test results and assessment data, along with information from other professionals and parents, are carefully analyzed by the therapist who then makes recommendations about appropriate treatment. aim of this article is introduce & diagnosis of SID for pediatricians.

**Keywords:** Sensory integration disorder