

Conclusion: This study showed the uncontrolled gestational diabetes reduces granular neurons and the thickness of layers of dentate gyrus in rat offspring.

Key words: Gestational diabetes, Dentate gyrus, Granular neuron, Rat.



Cotransplantation of induced oligodendrocytes and bone marrow stromal cells improved locomotive deficit in rat contusion model of spinal cord injury

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Introduction: spinal cord injury causes disability and high cost effect. Demyelination is a common lesion associated with this spinal trauma. One of the approaches to achieve remyelination of the demyelinated spinal cord is cytotherapy.

Methods: Bone marrow stromal cells (BMSCs) were isolated from rats' long bone and cultured for four passages and characterized by immunostaining with a cocktail of antibodies against specific markers to BMSCs. Then cells were preinduced with dimethylsulfoxide and all-trans retinoic acid and induced with bFGF, PDGF and HRG, followed T3. The cells were immunostained with a cocktail of antibodies against specific markers to oligodendrocytes. The transplantation was carried out on 8 groups: sham-operated (laminoectomy with reoperation: S), contused animals (C1), contused animals injected with vehicle (normal saline: NS), contused animals injected intraspinally with BMSCs (E1), contused animals injected intravenously with BMSCs (E2), contused animals injected intravenously and intraspinally with BMSCs (E3), contused animals injected intraspinally with oligodendrocyte-like cells (E4) and contused animals injected intraspinally with oligodendrocyte-like cells and intravenously with BMSCs (E5), the intravenously injected cells were labeled with BrdU while the intraspinally delivered cells were labeled with Hoechst. All groups were evaluated for locomotive activity using BBB test. After 12 weeks, the animals were sacrificed and tissues were processed for paraffin and cryostat sections and stained with H&E and immunocytochemistry. The cavity size and the percentage of differentiated transplanted oligodendrocytes (PDTO) were estimated.

Results: The BBB test and PDTO in E5 and E4 were significantly higher than C1, C2, E3, E2 and E1 groups (P<0.05). The highest score was in E5 but was significantly different from E4. The cavity size was low in cell therapy groups (E1-E5) as compared with the control groups (C1 and C2).

Conclusion: oligodendrocytes transplantation could improve the locomotive deficit in the injured spinal cord.

Key words: oligodendrocytes, cytotherapy, transdifferentiation



Study of Nitric Oxide (NO) effects on pregnant rats Cerebellum, using Morphometric Methods

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