Evaluation of bacterial contamination of umbilical cord blood units and its origin, for cryopreservation in Royan Cord blood Bank since 2005 to 2008

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Introduction: Since 1988, human umbilical cord blood has been used for transplantation. One of the mandatory tests for banking of umbilical cord blood is microbial screening test. This study was performed to determine the bacterial contamination of CBUs and its origin for cryopreservation in Royan Cord Blood Bank (RCBB).

Methods: 3074 cord blood units (CBUs) were tested for bacterial contamination. In the second step in order to determine the origin of bacterial contaminations, 309 CBUs were studied in two steps; after collection and after processing. Samples taken of each steps, were inoculated into Biphasic and Thioglycollate media and were incubated at 37°C for 48 hrs, 7days, 14days and 21days. Subcultures were performed on B.A, EMB and Ch.A media. Then the isolated bacteria were identified.

Results: 93 units (3.02%) of 3074 CBUs had bacterial contamination, when second step were performed, our results showed that 96.2% of infected units were contaminated at operating room and 3.8% were contaminated during the processing; 73.1% of bacterial contamination belonged to aerobic bacteria including Staphylococcus spp, Bacillus spp., Micrococcus spp. as skin commensals and about 26.9% belonged to anaerobic bacteria which were the species of Propionibacterium.

Conclusion: Our results showed that trained personals as well as standard collection methods will decrease the bacterial contaminations in collected cord blood units; so designing of training programs for midwives and phlebotomists in order to take sterile samples is to be necessary.

Key words: Bacterial contamination, Umbilical Cord Blood, Origin of contamination, Cryopreservation.