CORD BLOOD BANKING: CURRENT DEVELOPMENTS AND FUTURE REGENERATIVE TRANSPLANT MEDICINE

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ABSTRACT

Since twenty years of the first successful cord blood transplantation, it is yet widely accepted that the cord blood is the major source of the stem cells for transplantation. Intensive research is being done on animal and *in vitro* models for differentiation of cord blood stem cells into various cell types that signs to be a future regenerative therapy. Results obtained in the animal models using cord blood therapy are supportive and encouraging to treat various diseases like cardiovascular, neuronal, diabetic, leukemia and orthopedic disorders. Recently, cord blood progenitor cells with stem cell properties were identified in umbilical cord blood, which indicates that umbilical cord blood transplantation is expanding to even non-hematological use. Cord blood is more advantageous than other sources because of easy availability, less chance of host-versus-graft disease, easy procurement, less transmission of infections and low risk to donor. Modern day research is focusing on various strategies to increase the cord blood progenitors and homing of stem cells for the successful transplantation. Cord blood will be a prime source of stem cells for regenerative medicine in near future. We review the current developments and future regenerative medicine in cord blood transplantation.

KEYWORDS: Stem Cells, Umbilical Cord Blood.