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Studying the Antiapoptotic Activity of B Cells from Cord Blood Based Mesenchymal Stem Cells as an Approach to Treat Diabetes Mellitus

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Abstract : Diabetes Mellitus is metabolic disorder, characterized by high glucose levels in the blood due to one of the reason i.e., the death of β cells. The lack of β cells leads to the reduced insulin levels. The β cell death generally occurs due to apoptosis induced by the several cytokines. IL-1β, IFN- ϒ and TNF –α cytokines that are generally cause apoptosis to the β cell. The nutrient based apoptosis is generally seen with high glucose and free fatty acids. It is also noted that the β cell death triggered by Fas ligand and its receptor Fas at the surface of the activated CD8+ T- lymphocytes. Reports also reveal that the β cell apoptosis is under control of the transcription factors NF-kB and STAT- 1. The arresting or opposing of the β cell apoptosis can be overcome by the different growth factors like GLP-1, growth hormone, prolactin, VEGF, Dipeptidyl peptidase-4, Vildagliptin, suberoylanilidehydroxamic acid, trichistatin-A, XIAP, Bcl-2, FGF-21. Present investigation explains antiapoptotic property of the β cells derived from the mesenchymal stem cells of umbilical cord.

Keywords : stem cells, umblical cord, diabetes, apoptosis
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