

Wharton's Jelly Stromal Cells treated with diseased liver serum enhance angiogenesis and reduced apoptosis

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Abstract

Liver fibrosis is the excessive accumulation of ECM that destroys the hepatic architecture by making fibrotic scars or wounds in liver. In response to fibrosis different cytokines and growth factors can direct the migration of bone marrow mesenchymal stromal cells (BMSCs) towards wounded liver that could heal the scar of liver. Wharton's jelly (WJ) is a well-known source of stromal cells (SCs). A huge amount of stromal cells can be isolated from umbilical cord's Wharton's jelly (MJSCs). This study uses the concept of cell migration under the influence of serum derived factors to be used for regeneration. Thus, in the present study, different concentrations of blood serum from liver fibrosis patients (injured serum) and normal subjects (normal serum) was used for the preconditioning of 2nd passage WJSCs to explore their potential for the wound healing via improved angiogenesis, anti-oxidative enzymes and reduced injury. Results indicate improved survival and wound healing ability of the 5% serum treated WJSCs. 5% serum treatment have also shown increased angiogenesis and reduced H₂O₂ injury levels as evidenced by gene expression analysis. Therefore, this study would aid healing of wound via improved angiogenesis and reduced injury levels investigated in in-vitro studies.

Key Words: wound healing, WJSCs, angiogenesis, regeneration, H₂O₂ injury and liver fibrosis.



Biography:

I have completed my PhD at the age of 30 years from University of the Punjab, Pakistan. I have years of lab experience and used many available techniques during my Ph.D. and applied them since 2007. I have joined The University of Lahore as an assistant professor in 2013. During the last 6 years of teaching at University of Lahore, I have supervised 26 M.Phils. 40 BS, 5 Masters and 5 PhD Student who have completed their research or are in the process of completion.

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