

Prospects of stem cell therapy in endodontic treatments

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Abstract

Stem cell research and therapy is gaining popularity worldwide due to its unique regenerative potential in repairing tissue damage or loss. Its prospects and implications in dentistry has been revolutionary. The ability of stem cells to regenerate and differentiate in other types of cells is like a “beacon of hope” when it comes to severe dental mishaps. The dental stem cells isolated from the dental pulp and periodontal ligament have the greatest potential for tooth engineering. Among the numerous stem cells that have been identified from dental tissues, those from the pulpal tissues include dental pulp stem cells [DPSC] and stem cells from human exfoliated deciduous teeth (SHED). Adult dental stem cells can differentiate into many mimicking dental components, such as periodontal ligament, cementum, and dental pulp; but not anything close to enamel or dentin.

Endodontics is a dental specialty that treats trauma and infections involving the dental pulp, dentin, and periapical lesions. Root canal treatment (RCT) that involves the extirpation of the injured or infected dental pulp and filling of the root canal and pulp chamber with bioinert materials is the most common endodontic treatment. However, teeth with incomplete formation of roots, underformed dentin walls, and extensive apical lesions are clinical challenges for dentists as well as Endodontists. Regenerative endodontic procedures can include revascularization, partial pulpotomy, and apexogenesis.

Currently, an improved understanding regarding the use of autologous platelet concentrates and their role in healing processes has led to the expansion of new approaches in different fields of dentistry. In particular, leukocyte platelet-rich fibrin (L-PRF) has several properties that could be positive for Regenerative endodontic procedures (REPs), with its capacity to behave as scaffolds, provide growth factors and induce cell differentiation. Age and health status of patient of patients also contribute to the success and failure of different treatments.

Biography

Shouvik Mandal has completed his Masters in Dental Surgery in the field of Restorative Dentistry and Endodontic from MUHS University, India. He is currently affiliated as Assistant professor in MGM Dental College and Hospital, Navi Mumbai, India. He has many publications in national and International Journals.

Publications

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[2nd World Congress on Cell Science and Stem Cell Research | July 29-30, 2020](#)

Citation: Shouvik Mandal, Insights in Immunology, Prospects of stem cell therapy in endodontic treatments, Stem Cell Research 2020, 2nd World Congress on Cell Science and Stem Cell Research | July 29-30, 2020, 03.