Potential use of Dental Pulp Stem Cell in Laboratory Studies and Clinical Trials

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Abstract

Stem cell-based therapy has great potential in treating health conditions including cardiovascular, autoimmune, type I diabetes, neurodegenerative and bone and cartilage diseases also in spinal cord injuries, malformations and cancer. In addition to their potential use to treat systemic diseases, stem cell-based therapy also provides a powerful tool to treat oral and dental diseases such as craniofacial defects, dental caries, periodontal disease, oral cancer, salivary gland and temporomandibular joint dysfunction, resulting in poor quality of life in patients. Dental stem cells are commonly derived from the pulp or follicle of deciduous or permanent teeth. The multipotent dental stem cells have been implicated in cell-based medicine in oral and non-oral defects. This review discusses on potential use of dental stem cells in regenerative medicine from systemic diseases to tooth replacement therapy.

The DSCs can be obtained from the dental pulp tissue, dental follicle tissue and periodontal ligament tissue. Dental pulp stem cells (DPSCs) are an available stem cell source with therapeutic application in repair and regeneration of injured tissues. DPSCs show a multipotent character as they can differentiate into chondrocytes, adipocytes, osteoblasts, myocytes, and neuronal cells. Dental pulp stem cells (DPSCs) were first isolated and characterized from human teeth and most studies have focused on using human DPSCs for dentin regeneration. Dental stem cells derived from third molar teeth are considered a new source of stem cells that could be used for regenerative medicine.

Keywords: Clinical trials, Dental pulp stem cell, Disease.

Poster Presentation

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