Stem cell as an adjuvant in regenerative therapy

Abstract

Aim: Stem cell-based regenerative medicine has gained tremendous success nowadays. Stem cell research was done to assess the use of stem cell as an adjuvant in regeneration therapy in peri-implantitis is also used in dental implant dentistry.

Material and methods: An electronic and manual search was done in pubmed and scopus to study the use of stem cells as an adjuvant in regeneration in peri-implantitis. 25 full text articles were selected. For the treatment of implant defects recently stem cell are used as seed cells for promoting the bone tissue regeneration. The three types of dental stem cells used are bone marrow mesenchymal stem cells, periodontal ligament stem cells and adipose stem cells. These cells have multiple differentiation potentials including osteogenic differentiation. The defect configuration also plays a crucial role in the outcome of regeneration.

Results: The animal researches showed differentiated cells could promote bone formation around the implant, effectively improve peri-implant bone defects, and significantly increase the height of alveolar bone. Long-term follow up clinical human studies are not yet performed, but no serious complications related to stem cells grafting have been reported. In the future, more clinical controlled studies on stem cells are necessary in humans.

Conclusions: Hence it can be concluded that stem cells can be used as an adjuvant in regeneration therapy than the conventional bone tissue augmentation procedures in periimplantitis.

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