

Use of mesenchymal stem cells to treat cleft lip

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Cleft lip and palate CLP is caused by incomplete fusion of the facial prominences during the fourth to tenth week of gestation. The alveolar cleft is usually reconstructed at an early age to provide continuity and stabilization of the maxillary arch, to close the oronasal fistula, to permit tooth eruption, to provide support of the alar base and to improve nasal symmetry. Autologous bone graft has been the gold standard of bone replacement. An alternative strategy would be to utilize stem cells supplied with biomaterials, such as collagen sponge/hydroxyapatite and platelet-rich plasma, which have shown promising results in preclinical and clinical trials. *In-vitro* studies conducted using collagen and hydroxyapatite have shown favorable results logically progressing towards testing of the impregnated mesenchymal stem cells (MSCs) on collagen sponge/hydroxyapatite on animal models eventually paving way to use MSCs in human trials for alveolar bone grafting. Each hydroxyapatite scaffold is available as a cylinder, loaded with cells, cut to size according to the approximate size of the required graft. This approach will not only reduce donor site morbidity, but will also result in reduced hospital stay, decreased incidence of post-operative wound infections and also bring down the costs related to alveolar bone grafting. It will simplify the surgical procedure, especially in large bilateral clefts, where multiple surgeries may be required. MSCs can be easily obtained from Stem Cell banks; discarded fragments from adipose and muscle tissue during lip repair are also autologous sources of stem cells eliminating the scope of graft versus host disease.

Biography

Anand Gurumoorthy is a member of the prestigious Institute of Chartered Accountants of India. Currently he serves as a Sr.Vice-President in a Firm with specific focus in Social Entrepreneurship. His interests reside in making affordable healthcare a reality in rural India using Stem Cell technology for medical conditions. He works closely with several Scientists, Clinicians, and Investors in this domain. He has helped Stem Cell Scientists raise funds for research and also publish articles. In the past he was associated with Ernst and Young, Deloitte and KPMG with significant experience in Mergers and Acquisitions.

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