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## New approach for damaged facial nerve regeneration based on stem cells

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In facial nerve damage especially full-cut paralysis which can occur due to several conditions (congenital, tumor, iatrogenic-operation dependent), there is no spontaneous regeneration. Hence, several treatments are used to attempt regeneration of facial nerves such as end-to-end anastomosis, direct coaptation, artificial nerve guide conduit, autologous or decellularized grafts, anastomosis of distal facial nerve to the proximal cranial nerves. Since these techniques used have some disadvantages such as the limitation in source of Schwann cells, surgery intervention resulting in functional loss and difficulties in preparing nerve grafts, there is need for effective alternative techniques to be developed. Though the experiments associated with peripheral nerve injury in which adipose tissue, bone marrow and hippocampal neural stem cell are used have obtained positive results. The usage of stem cells isolated from the olfactory region that is the only attainable neuronal stem cell in nerve regeneration if not the peripheral nerve regeneration may provide an alternative treatment technique for facial nerve injury. Our group were used OSCs that isolated from olfactory mucosa tissue of human participants. 2 mm excision was performed on right facial nerve for all rats. Reconstruction was performed with conduit in first group; conduit and phosphate-buffer saline in second group; conduit and labeled OSCs in third group. Rats were followed for whisker-movements and electroneuronography (ENoG) analyses. Recovery for third group was significantly different from first and second group. This study suggests that OSC may be used as a potent cellular therapy for accelerating regeneration of peripheral nerve injuries. A new study was designed for compared the effectiveness of adipose tissue, bone marrow and olfactory stem cells for facial nerve regeneration.

### Biography

Aysegul Batioglu-Karaaltin has completed her MD degree from Hacettepe University and her Residency at the Department of ENT and Head & Neck at Ministry of Health Education & Research Hospital. She is working at Department of Otolaryngology Head and Neck Surgery, Istanbul University Cerrahpasa School of Medicine. She is carrying out more than 10 Research about Regenerative Medicine and Tissue Engineering in the Head and Neck field. She has published more than 15 papers in reputed journals.

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