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### **Adipose-derived mesenchymal stem cells in the regeneration of vocal folds: A study on a chronic vocal fold scar**

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Vocal folds trauma due to inflammation, injury, radiotherapy or surgery can lead to the formation of scar tissue. The microstructure of the lamina propria changes drastically with loss of the distinct 3-layer structure which results in dysphonia for the patient. Numerous phonosurgical procedures have been attended to restore the vibratory properties of the scarred vocal folds. Voice therapy is a more conservative treatment with various results. None of them had attended an optimal result. Our protocol is based on creating a trauma on the vocal folds of an experimental model (rabbit) and infuses adipose derived stem cells (ADSC) on the scar after 18 months. We calculate the amount of collagen, hyaluronic acid and elastin. We compare our results with a control group who didn't receive any treatment, and a group of experimental models in whom we infuse hyaluronic acid in the scarred vocal fold. The transplantation of adipose- derived mesenchymal stem cells in a chronic scar lead to an anatomical regeneration of the vocal fold by dissolution of the excessive collagen fibers forming the scar tissue, restoration of the normal structure of the elastic fibers and normalization of the amount of hyaluronic acid. The preparation and use of adipose stem cells is easy, and its greater stability. Our method does not require special storage conditions of preparation, until the time of isolation of mesenchymal stem cell and does not involve ethical issues comparing with embryonic stem cells. It is the only study in which every rabbit received autologous adipose derived stem cell.

#### **Biography**

Angelou Valerie, MD, MSc is a graduate of Universite Libre of Brussels. She completed her residency in Otorhinolaryngology at Evaggelismos General Hospital of Athens and was board certified in 2014. Since then she is practicing otorhinolaryngology at Phoniatrics and Applied Laryngology Center of Athens. She completed her MSc in Rhinology and Rhinosurgery from the Dimokriton University of Thraces in 2015. Her research is focused on restoration of the speaking and singing voice.

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