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The effects of infused mesenchymal stem cells obtained by adipose tissue (ADSCs) to treat chronic scar tissue of the vocal cords in an animal model

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Numerous studies have provided preclinical data on the safety and efficacy of adipose derived stem cells supporting the use of these cells in current and future clinical applications. This is the first study to our knowledge, which aims to use the cell viability and absolute number of isolate mesenchymal stem cells from ADSCs and their effect to chronic scar tissue of the vocal cords. Adipose tissue (10 gr) was taken from the groin of 70 healthy rabbits, New Zealand variety (2.5-3.8 Kg). 10 of the samples were used as controls were the remaining 60 rabbits undergo vocal cord injuries under anesthesia and laryngoscopy. The isolated ADSCs were infused directly to the scar tissue of the vocal cords. Multi-parameter flow cytometry with magnetic beats was used to determine the absolute number, viability and the ADSCs isolation. The samples were processed within 1 hour of collection. The results obtained from the analysis of all samples indicate that the highest absolute number of viable adipose derived stem cells was isolated. Their purity was confirmed by the high expression (>95%) in the positive markers and low expression (<2%) in the negative markers. We also studied the ADSCs characteristics after the transplantation at 3, 6 & 12 months in order to measure the elasticity of the vocal cords between the groups. Taken together, these data indicate that purified lipoaspirate-derived stem cells maintain their characteristic of staminality, suggesting that they could be applied for cell-based therapy to improve chronic scar tissue of the vocal cords.

Biography

Vasiliki E Kalodimou, MSc PhD is the Director of the Flow Cytometry-Research and Regenerative Medicine Department at IASO Hospital in Athens, Greece. She has studied and worked with progenitor cells from placenta, umbilical cord, and adipose tissue along with their applications in regenerative medicine and flow cytometry, with publications in the field, including research fellowships. She has published 2 books on flow cytometry, the Greek edition was published in 2010 and in 2013 the book was published from AABB Press USA. She is an AABB assessor and her biography is included in Who's Who in the world 2014 edition.

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