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The Latest Advance in Hair Regeneration Therapy Using Proteins Secreted by Adipose-Derived Stem Cells

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Abstract

Introduction:

Adipose-derived stem cells (ADSCs) that can be harvested from fat cells are one of the latest breakthroughs in the aesthetic field. In addition, basic studies have reported that ADSC conditioned medium (ADSC-CM) promotes skin and hair regeneration. We validate our novel approach, known as hair regenerative therapy, for hair growth treatment using ADSC-CM.

Materials and Methods:

ADSCs were cultured and expanded in hypoxic culture conditions, and ADSC-CM was collected. ADSC-CM includes various cytokines and growth factors that influence hair regrowth, to which we added buflomedyl, cysteine, coenzyme Q10, and vitamins. Protein solution from ADSC-CM was applied 4 to 6 times every 3 to 5 weeks by mesotherapy techniques such as nappage and papule injections. Satisfactory results of hair regenerative therapy in 12 women and 13 men were determined with a visual analog scale.

Results:

All patients experienced increased hair growth from the treatments with ADSC-CM. Four treatment sessions performed within 3 to 4 months provided especially good results. Scores on the visual analog scale increased with treatment frequency. Statistical significance was determined by Friedman's 2-way analysis of variance ($P < .01$) and Wilcoxon's signed rank test ($P < .01$).

Discussion:

ADSCs secrete cytokines, such as keratinocyte growth factor, vascular endotheliatl growth factor, platelet-derived growth factor, hepatocyte growth factor. Those cytokines and growth factor are very important for hair growth. Our new therapy with ADSC-CM does not require specialized facilities, such as a cell-processing center, and can be a valuable treatment.

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