

The effectiveness of innovative treatment methods for post-acne using autologous fibroblasts in stimulating skin regeneration

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Conflict of interest: none

BACKGROUND. Post-acne scars remain one of the most common aesthetic and dermatological concerns, significantly impacting patients' quality of life. Acne vulgaris affects 85 % of adolescents and young adults, with 30-50 % of those with severe inflammatory reactions developing scars that alter the texture of the skin's superficial and deep dermis. These scars can cause emotional and psychological distress, decreasing self-esteem and social activity. Traditional treatment methods for post-acne scars often fail to fully restore skin structure and function, prompting the exploration of innovative approaches, including the use of autologous fibroblasts. These cells have the potential to promote natural skin regeneration by stimulating collagen, elastin, and other extracellular matrix components. Moreover, autologous fibroblasts may be beneficial in combating skin aging associated with cellular senescence and decreased cellular functions. The use of fibroblasts has shown promise not only in post-acne scars but also in addressing aging-related skin changes.

OBJECTIVE. Based on a literature review, to analyze the results of using autologous fibroblasts in the treatment of post-acne, specifically their impact on collagen synthesis, elastin, and other extracellular matrix components.

MATERIALS AND METHODS. The bibliographic analysis of foreign scientific sources on post-acne treatment and methods for isolating autologous fibroblasts from skin biopsies, their cultivation, and clinical application was used.

RESULTS AND DISCUSSION. The effectiveness and safety of using autologous dermal fibroblasts for post-acne treatment and skin regeneration were analyzed. It highlights the limitations of current treatments and discusses the impact of fibroblasts on collagen, elastin, and extracellular matrix synthesis. Research shows that autologous fibroblasts improve skin tone, density, reduce scars, and enhance texture, with effects lasting 6-12 months. Higher doses (20-25 million cells) were more effective for severe defects. The method also shows potential for combating skin aging. Side effects were minimal, such as mild erythema and swelling. Autologous fibroblasts offer a safer alternative to synthetic methods due to lower rejection risks.

KEY WORDS: autologous fibroblasts, post-acne scars, collagen, elastin.
