

Gene expression analysis in scars treated with silicone cream: a case series

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Abstract



Background: In contrast to fetal scar tissue, adult scar tissue presents with visible scarring. Topical silicone creams have been shown to improve the appearance of scars. This case series compares the genetic expression of post-surgical scar tissues that received topical scar treatment with silicone cream, SKN2017B, or no treatment. SKN2017B is a recently formulated silicone-based scar cream that contains selective synthetic recombinant human growth factors, hyaluronic acid, and vitamin C. We hypothesise that scars treated with silicone-based scar creams have a more favourable genetic expression resembling a well-healing scar.

Methods: Women who had undergone an abdominoplasty were included in this investigation and randomly assigned to treat part of the scar with topical silicone, another part with SKN2017B, and to leave a third part untreated. After four weeks, punch biopsies were taken and the RNA sequenced. Healthy abdominal skin was biopsied as baseline data. Genes of interest were identified and median values were calculated for the samples.

Results: SKN2017B-treated scars demonstrated the lowest collagen type I to collagen type III ratio. Other key genes of interest in wound healing showed the lowest (favourable) expression of fibroblast activation protein alpha, lysyl oxidase and cartilage oligomeric matrix protein; the highest (favourable) expression of fibronectin type III domain containing 1 and matrix metalloproteinase 9 were found in scars treated with SKN2017B.

Conclusion: The results of this small case series demonstrate a trend that those scars treated with topical silicone cream, notably SKN2017B, display the most favourable gene expression for wound healing.

Keywords

Silicone cream, growth factors, gene expression, RNA sequencing, scar, wound, healing

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