AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

THE EFFICACY OF POWDERED POLYDIOXANONE IN TERMS OF COLLAGEN PRODUCTION COMPARED WITH POLY-L-LACTIC ACID IN A MURINE MODEL

By Kim [1] - Si Ryu [1] - Hj Ryu [1]

Korea University Ansan Hospital, Department Of Dermatology, Ansan, Republic Of Korea [1]

Background: There are many collagen-stimulating fillers, including calcium hydroxyapatite, polycaprolactone (PCL), and poly-L-lactic acid (PLLA), and other materials have been tested. Polydioxanone (PDO) has recently been used as absorbable thread-lifting material due to its collagen-forming effects. PDO in powdered form is expected to be a good material for collagen-producing fillers.

Objectives: To evaluate the collagen-producing effects of powdered PDO injection compared with PLLA injection in a murine model

Materials and Methods: Powdered PDO mixed with sodium carboxymethyl cellulose, PLLA, and phosphate-buffered saline were injected on dorsal skin of 8-week-old rat. Tissue samples were obtained 1, 2, and 12 weeks after the procedures for histopathologic review and for real-time PCR to quantify collagen and tissue growth factors.

Results: Both PLLA and powdered PDO injections induced granulomatous reactions. Collagen type 1, collagen type 3, TGF-β1, TGF-β2, and TGF-β3 showed increases 2 weeks after injection but decreased 12 weeks after injection for both powdered PDO and PLLA.

Conclusion: Our results suggested that powdered PDO injection induces collagen formation more effectively than PLLA injection. Therefore, PDO can be a good option for forming collagen.