

Possible involvement of pro-inflammatory cytokines and growth factors in the pathogenesis of the Dupuytren's contracture: a novel target for a future therapeutic strategy?

Samanta Taurone, Elena Pompili, Lia Bardella, Alberto Signore, Caterina Chiappetta, Cira Di Gioia, Lorenzo Fumagalli, Marco Artico

Department of Anatomy, Histology, Forensic Medicine and Orthopedics, Sapienza University, Rome, Italy

Dupuytren's contracture (DC) is a benign fibroproliferative disease causing fibrotic nodules and fascial cords with resultant debilitating flexion contracture deformities. The present study was designed to characterize pro-inflammatory cytokines and growth factors involved in the genesis, progression and recurrence of the disease to optimize therapeutic agents and strategies for controlling Dupuytren's disease. The expression of pro-inflammatory cytokines and other growth factors was detected by immunohistochemistry and immunofluorescence in the fibrotic nodules and normal palmar fascia resected respectively from patients affected by Dupuytren's contracture and Carpal Tunnel Syndrome (as negative controls). RT-PCR analysis was performed to quantify the expression of TGF- β 1, IL-1 β and VEGFa in the myofibroblasts and fibroblasts isolated from Dupuytren's nodules. Histological analysis showed the high cellularity and rate of proliferation of Dupuytren's tissue with the presence of myofibroblastic isotypes. Our data showed the strong expression of TGF- β 1, IL-1 β and VEGFa in Dupuytren's fibromatosis nodules suggesting a direct role of these markers in the onset, progression and recurrence of the disease. Our observations suggest that TGF- β 1, IL-1 β and VEGFa may be considered potential therapeutic targets in the treatment of Dupuytren's disease. Moreover, a new innovative therapy may be represented by the combined use of specific inhibitors of these growth factors.

This work was supported by a grant of the "Enrico ed Enrica Sovena" Foundation, Italy.

Keywords

IHC; Dupuytren's contracture; myofibroblasts; cytokines; growth factors.