Apoptosis activation in the induratio penis plastica

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Introduction Peyronie's disease (PD) is a connective tissue disorder of the tunica albuginea (TA), a thick fibrous sheath surrounding the corpora cavernosa of the penis. Relatively little is known about the disease itself and a greater understanding of the pathophysiology of PD at the molecular level may provide insights and lead to novel forms of treatment.

Aim To investigate whether the apoptosis cascade in degenerated and macroscopically deformed tunica albuginea from men with Peyronie's disease is activated through the extrinsic pathway by assessing the immunoexpression of tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) and its death receptor, DR5.

Methods TA plaques from 15 men with PD and from 4 unaffected men were used for this study. Paraffin tissue sections were processed for TRAIL and DR5 immunohistochemistry and Western blot analysis.

Results Activation of the apoptosis mechanisms through the extrinsic pathway was demonstrated by TRAIL and DR5 overexpression in fibroblasts and myofibroblasts from affected TA.

Conclusion The finding that apoptosis activation in TA plaques occurs, at least in part, via the extrinsic pathway may help devise novel therapeutic options for these patients.