

HISTOLOGICAL CHARACTERISTICS AND EXPRESSION OF MATRIX METALLOPROTEINASES (MMPs)-1, 9 IN THE UTEROSACRAL LIGAMENT AND VAGINAL SKIN FROM WOMEN WITH PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

In spite of the high prevalence of pelvic organ prolapse (POP), little is known about its pathogenesis. Past studies have already suggested the role of matrix metalloproteinases (MMPs) in the pathophysiology of POP. This study aimed to further investigate the role of MMPs 1, 9 in the pathophysiology of POP and to evaluate originally whether inflammatory changes also play a role in the pathogenesis of POP.

Study design, materials and methods

Prospective observational experimental study.

The study population included forty women, who underwent Hysterectomy. The study group consisted of twenty women with POP grade 2 and above, who underwent hysterectomy as part of a reconstructive pelvic surgery. As controls served twenty women without POP, who underwent hysterectomy due to benign conditions. Two biopsies were obtained from each woman: one from the uterosacral ligament, and another from the vaginal skin. The sections were stained with hematoxyline and eosin (H&E) and immunohistochemical stains using antibodies to MMP-1 and MMP-9. The degree of immunoreactivity of the fibroblasts and stroma was evaluated using light microscope. The level of associated inflammatory changes (lymphocytic infiltrates and capillary proliferation) was assessed on the H&E stained slides.

Results

The expression of both MMPs in the stroma was higher in the study group than in the control group in the vaginal skin (MMP-9: $p=0.042$, MMP-1: $p=0.004$) and in the uterosacral ligament (MMP-9: $p=0.015$, MMP-1: $p=0.011$). The expression of both MMPs was also significantly higher in the study group than in the control group in the fibroblasts from the Uterosacral Ligament and vaginal skin ($p<0.001$ for all). No significant differences were found in the degree of inflammatory changes between the two study groups.

Interpretation of results

Higher expression of MMP-1 and MMP-9 in the uterosacral ligament and vaginal skin of women with prolapse, further establishes their role in the pathophysiology of pelvic organ prolapse. Inflammatory changes do not seem to play a role in the pathogenesis of POP.

Concluding message

Inflammatory changes do not seem to play a role in the pathogenesis of POP.

<i>Specify source of funding or grant</i>	Research grant from the Faculty of Medicine - Gen Gurion University of the Negev, Beer Sheva Israel
<i>Is this a clinical trial?</i>	Yes
<i>Is this study registered in a public clinical trials registry?</i>	Yes
<i>Specify Name of Public Registry, Registration Number</i>	Soroka University Medical Center #4431 (2007)
<i>Is this a Randomised Controlled Trial (RCT)?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Soroka University Medical Center Ethics Committee #4431 (2007)
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes