

THE UTEROSACRAL LIGAMENT IN POSTMENOPAUSAL WOMEN WITH OR WITHOUT PELVIC ORGAN PROLAPSE.

Hypothesis / aims of study

At least 50 % of all women after the vaginal delivery suffer from genital prolapse and the life expectancy of a prolapse/genuine stress incontinence (GSI) surgery is 11%. The main structure contributing to the pelvic support are uterosacral ligaments (USL) with their different components. The objective of this study was to compare those structural components in women with and without pelvic organ prolapse (POP). We wanted to test the hypothesis that POP is associated with changes in the connective tissue composition and quantity of ECM proteins and to test the hypothesis that there are the differences of ECM composition of the USL of continent and incontinent women with POP(2).

Study design, materials and methods

This study is carried out as a multicenter, open, prospective, case-control series; patients are divided into two groups: 1. women with POP with or without GSI, 2. control group without POP or GSI. We plan to reach in the symptomatic group 150-200 patients. All patients with clinical symptoms of GSI and/or POP underwent a pre-operative urodynamics and assessment of POP according to the criteria of ICS. During the study we examine the expression patterns of collagen I, III, IV, V, laminin, fibronectin and elastin in biopsies obtained from the USL during surgery. Standardized histomorphological and immunohistochemical protocol is used by quantifying the content of collagen I, collagen III, and smooth muscle using a computerized image analysis. Also the expression patterns of matrix metalloproteinases (MMP) mainly responsible for degradation of collagen and of other extracellular matrix macromolecules are studied. The correlation of those parameters with clinical data as age, parity, menopausal status, use of HRT and the differences in between the groups are evaluated with statistical methods as linear model, Kruskal-Wallis one way analysis of variance on ranks and Spearman rank order correlation. Ethical committee approval was granted and informed content of the patients signed. We did not receive any external funding of our study or grants.

Results

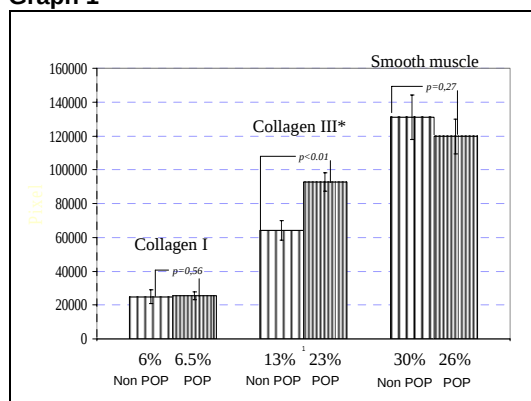
We characterized so far uterosacral ligaments of 25 postmenopausal women with POP and 16 controls. Their demographic characteristics are listed in Table 1.

Table 1

History	Non POP (16)	POP (25)	p-value
Age	50,5 (47,5-53,0)	61 (51,0-72,5)	<0,01
Parity	2,0 (0,5 – 2,5)	2,0 (2,0-3,0)	0,2

There was no difference in collagen I expression and smooth muscle cell amount between women with POP and those without. In contrast, the collagen III expression was significantly related to the presence of POP ($p < 0.001$) rather than age or parity.

Graph 1



Interpretation of results

Our findings suggest that the higher collagen III expression might be a typical characteristic of POP patient's connective tissue. The considerable amount of smooth muscle cells in uterosacral ligaments may provide pelvic support.

Concluding message

1. The uterosacral ligaments consist of almost 1/3 of smooth muscle.
2. Collagen III high expression in the POP group can be explained as a sign of connective tissue morphological and functional alteration in those patients.
3. Already a limited number of patients presented in the pilot project here revealed the need of further study: we shall start the examination of our material on DNA level with the aim to predict in women population the group with the inborn risk of prolapse/GSI presentation.

References:

1. Am J Obstet Gynecol, 2000, 182 (6), pp 1565-74

2. Curr Opin Obstet Gynecol, 1999, 11(5), pp 509-15
3. Mech Ageing Dev, 2000, 115(3), pp 175-87

FUNDING: NONE

DISCLOSURES: NONE

HUMAN SUBJECTS: This study was approved by the Ethics Committee of Teaching Hospital Na Bulovce, Prague, Czech Republic and Ethics Committee of Freiburg University Medical Center, Freiburg, Germany and followed the Declaration of Helsinki Informed consent was obtained from the patients.