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COMPARISON OF A MODEL PREDICTING THE RISK OF DE NOVO STRESS URINARY INCONTINENCE IN WOMEN UNDERGOING PROLAPSE SURGERY WITH URODYNAMIC STUDIES

Hypothesis / aims of study
Symptomatic pelvic organ prolapse (POP) is a frequent indication of surgery. Despite loss of vaginal and urethral supports that usually lead to stress urinary incontinence (SUI), some women with POP may still be continent due to either kinking or compression of the urethra by the prolapsed pelvic organ. Thus, continent women with POP may also have what is called ''occult SUI'' which will appear once prolapse is reduced. De novo SUI is a disappointing outcome for previously continent women who performed surgical treatment for bothersome POP. Reported rates of postoperative SUI following POP surgery vary widely and range from 16-51%. Preoperative urodynamic testing with prolapse reduction has been demonstrated to unmask occult SUI in 36-80 % of clinically incontinent women with advanced POP who may benefit from incontinence surgery at the time of POP surgery (1).
In this study, we aimed to compare the prediction model for estimating the risk of de novo SUI after POP surgery that is studied with *Jelovsek et al.* with preoperative urodynamic testing with prolapse reduction (2).

Study design, materials and methods
This is a retrospective study that included all women without preoperative SUI who underwent surgery for symptomatic POP (>stage 2) and evaluated with preoperative urodynamic testing with prolapse reduction between 2004 and 2013. Details included demographic data, number of vaginal deliveries, any history of urinary incontinence, any history of previous surgery for incontinence, physical and urogynecologic examination findings such as BMI, urethral hypermobility, stress test and pelvic floor muscle strength. Multichannel cystometry results were collected for all eligible women with their prolapse reduced by either a pessary or a vaginal tampon. Postoperative analysis included evaluation of new onset SUI, urogynecologic examination with stress test. All patients with occult SUI that is proven by urodynamics underwent midurethral sling surgery. 199 women fully documented clinical assesments including urodynamic testing were included and with using POP model calculator containing seven predictors (age at surgery, number of vaginal deliveries, BMI, preoperative stress test, continence procedure, urine leakage associated with a feeling of urgency, diagnosed diabetes) predicted probability of de novo SUI was calculated.

Results
The total number of patients diagnosed with pelvic organ prolapse with or without urinary incontinence symptoms and evaluated with urodynamics with reduction of prolapse was 606. 199 of these patients did not report any urinary incontinence symptoms, but only suffered from pelvic organ prolapse. Preoperative stress test was positive in 19 patients (9.5 %).Demographic variables of the patients included in the study are summarized in Table 1. The rate of surgery for occult SUI following leakage after reduction test was 13 % (n=26). There were 24 transobturator and 2 retropubic slings placed. There was no requirement for sling revision due to obstruction. With using POP model calculator; our 88 patients (44.2 %) had predicted probability more than 0.5; suggesting that they should be performed anti-incontinence surgery concomitant with POP surgery. And only 13 patients (50 %) which performed anti-incontinence surgery had predicted probability > 0.5. During follow-up, 7 patients (3.5 %) had de novo SUI which was not shown in urodynamic studies. According to POP model only four of these patients (57.1 %) had predicted probability > 0.5. Predicted probability of the other 3 patients was also lower than 0.5.

Interpretation of results
We saw that when we applied the POP model calculator to our patients, according to predicted probability we should have performed additional 62 antiincontinence surgery. Only 50% of the patients who had leakage on cystometry and underwent sling operation were detected with POP model, other 13 patients should not have been operated according to POP model calculator. Also 42.9 % of 7 patients who developed de novo SUI which had negative cystometry, were calculated as having predicted probability lower than 0.5.

Concluding message
This individualized prediction model for de novo SUI after POP surgery does not seem to have an advantage over urodynamic studies regarding predictive accuracy. In addition, it might lead to an increase in the number of anti-incontinence surgeries performed. Further research with randomized studies would be better in comparing these two methods.

Table 1: Demographic variables of the patients

Variable	Mean ± SD or n(%)
Age at surgery	60,38 ± 10.86
BMI	30,44 ± 6.02
Vaginal delivery	3,45 ± 1.82
Ped test	13,44 ± 41.91
Q-type test	57,05 ± 23.58

Perineometer	14,66 ± 8.67
Preoperative stress test Positive Negative	 19(9) 180(91)
Diabetes Yes No	 39(19) 160(81)
Leakage associated with a feeling of urgency Yes No	 89(44) 110(56)
Continence Procedure Yes No	 15(8) 184(92)

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