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CONSIDERATION AS TO THE CAUSE OF OAB AND ITS COEXISTENCE WITH POP USING PRESSURE/FLOW URODYNAMICS INVESTIGATIONS BY VAGINAL PACK PROCEDURE.

Hypothesis / aims of study

The aim of present study is to further elucidate the pathophysiology of overactive bladder (OAB) coexisting with pelvic organ prolapse (POP). In women, the concept has been proposed that the association between OAB with POP is due to bladder outlet obstruction (BOO) in many cases.[1] We therefore designed a prospective study to provide supporting evidence to support the concept of association between POP and OAB by examining the pathophysiology using urodynamic criteria.

Study design, materials and methods

After obtaining informed consent from 50 patients with stage 2 or more POP, associated with cystocele, were evaluated using urodynamic study (UDS) between April 2000 and March 2011. UDS was used to establish the presence of OAB and also following the correction of POP using a single gauze pack in the vagina. UDS consisted of filling cystometry and pressure-flow study (PFS) with subjects in the sitting position using a 7 F double lumen urethral catheter. Saline infusion rate was set to be 50 ml/min.

Results

The mean age of the patients was 69.5 years (51-81 years). As a result of insertion of the gauze pack in the vagina, bladder capacity (BC) at first desire to void (FDV) increased significantly from 111 ml to 159 ml ($p<0.001$). Detrusor pressure (P_{det}) at FDV after the gauze pack changed from 5.2 cmH_2O to 3.8 cmH_2O, and there was not the significant difference. The BC at maximum desire to void (MDV) increased significantly from 232 ml to 286 ml ($p<0.001$), and Pdet at MDV decreased significantly from 10.4 cmH_2O to 5.7 cmH_2O ($p<0.003$) following the insertion of the gauze pack.

In 25 of the 50 cases, the POP was accompanied with OAB (dry in 2 case and wet in 23 cases), and detrusor overactivity (DO) was observed in 48% (12 / 25) cases. The DO in 9 of the 12 cases resolved as a result of insertion of a gauze pack in the vagina.

In 29 patients who were able to urinate under the PFS without hand pushing, maximum flow rate (Q_{max}) increased significantly from 15.2 ± 10.8 ml/sec to 19.8±8.6 ml/sec ($p<0.02$) and P_{det} at the Q_{max} decreased from 32.4 ± 18.8 cm H_2O to 24.0 ± 16.9 cm H_2O ($p<0.03$) after correcting the POP by inserting a single gauze pack in the vagina. In 21 patients who weren't able to urinate under PFS before correcting the POP, 8 patients were to urinate after gauze correction of POP.

Interpretation of results

UDS results demonstrated that the vaginal pack procedure increased the storage ability of the bladder since both the numerical values of BC at FDV and at MDV increased significantly. Furthermore micturition was facilitated as demonstrated by a significant decrease in P_{det} at MDV. Facilitation in micturition was further demonstrated by the PFS studies that showed that about 50% of POP patients who were not able to void were able to empty their bladder after vaginal pack procedure.

Concluding message

Evidence provided in this study suggests that POP can become an important cause of OAB as exemplified by the immediate decrease on DO following correction. Furthermore it is suggested that the reason POP causes OAB may be due to conditions that are reversible over a shorter time frame, such as an increase in afferent nerve sensitivity or decrease in bladder blood flow, due to overdistention of the bladder. Analogously in the male, benign prostatic hypertrophy (BPH) that causes BOO in 50-70% is accompanied with OAB. In more than half of the cases there is improvement when treated with α_1 blocker suggesting that there is a common pathophysiological origin of BOO due to BPH or POP.

References

1. de Boer TA et al.: Pelvic organ prolapse and overactive bladder. Neurourol Urodyn. 2010; 29(1): 30-9.

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Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**No**
Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**This study was exempt from institutional ethics committee approval in the country of origin.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**