

PROPHYLACTIC ANTIBIOTICS TO REDUCE THE RISK OF URINARY TRACT INFECTIONS AFTER URODYNAMIC STUDIES IN WOMEN WITH ADVANCED PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

There is a small risk that people who have invasive urodynamic studies will develop symptomatic urinary tract infections. Nowadays, there is no consensus on the use of prophylactic antibiotics before or immediately after urodynamics. This strategy is often used for high risk patients. We hypothesized that the incidence of symptomatic urinary tract infections in female patients with advanced pelvic organ prolapse and urinary incontinence is not negligible after urodynamics.

Study design, materials and methods

This is a non-randomised study to assess the effectiveness of administering prophylactic antibiotics in reducing the risk of urinary tract infections after urodynamic studies in postmenopausal women with advanced pelvic organ prolapse (POP) and urinary incontinence (UI). Patients received either prophylactic antibiotic (oral antibiotic prophylaxis with a single 400-mg dose of norfloxacin) just after examination at "urodynamics center 1" or observation at "urodynamics center 2", both located in a single tertiary hospital. International Continence Society Pelvic Organ Prolapse Quantification (ICS POP-Q) has been used to quantify POP severity. Only patients with POP stage II or more were included. Urine cultures were performed 5 to 7 days after urodynamics. The primary outcome was occurrence of significant bacteriuria, defined as the presence of more than 100,000 bacteria per millilitre of a mid-stream urine sample on culture and sensitivity testing, associated or not with lower urinary tract symptoms.

Student's t-test was used to statistically compare continuous variables and chi-square test to compare categorical variables. Statistical Packet for Social Sciences version 13.0 for Windows (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. All differences with a p value less than 0.05 were considered statistically significant.

Results

From November 2013 to March 2014, 54 consecutive patients were enrolled in this study (28 in antibiotic arm and 26 in observation arm). Mean age was 64±10.02 years. Mean weight was 71.78±11.54 kg (50 to 100 kg). Mean number of previous pregnancies was 2.84±1.88 (0 to 8).

In regards to the pelvic organ prolapse, 66.7% of patients had anterior compartment involvement, 38.1% had posterior compartment involvement and 4.8% had apical involvement.

In regards to urodynamic diagnosis, 52.3% of patients had stress urinary incontinence, 18.2% had urgency urinary incontinence, 18.2% had mixed urinary incontinence and 11.4% had bladder outlet obstruction.

Urodynamic outcomes: mean bladder capacity was 365.74±104.06 ml (50 to 727 ml), mean maximum flow was 15.12±7.86 ml/seg (3.5 to 34 ml/seg), mean detrusor pressure at maximum flow was 29.26±14.97 cmH₂O (4 to 78.5) and mean post-void residual was 36.6±76.19 ml (0 to 422). There was no significant association between any of these urodynamic outcomes and development of symptomatic urinary tract infection after examination (P>.05).

Clinical and urodynamic parameters (including post-void residual) were not statistically different between groups (prophylactic antibiotics versus observation) (p>0.05).

Five out of 54 patients developed symptomatic urinary tract infection. One out of 54 patients had asymptomatic bacteriuria (positive culture without symptoms). All these six patients did not receive prophylactic antibiotics (observation arm). There were no positive cultures in the antibiotic arm (p=0.007). The most common bacteria was *Escherichia coli* (5 cases).

The patients who developed positive urine cultures had also a higher chance to complain of significant dysuria the day after urodynamics (p<0.001). None of the patients reported fever.

Table 1. Clinical and Urodynamic parameters in the observation arm versus antibiotic arm*

	Weight (kg)	Bladder Capacity (ml)	Maximum flow (ml/seg)	Symptomatic urinary tract infection after urodynamics
Observation arm	70.05±9.77**	349.04±125.31**	15.77±6.04**	5 patients***
Antibiotic arm	73.68±13.21**	379.46±82.63**	14.44±9.51**	None

* Data presented as mean±standard deviation

** P >0.05

*** P=0.007

Interpretation of results

According to a recently published Cochrane Database Systematic Review (1), amongst women, the number needed to treat to prevent bacteriuria after urodynamics was 13.4 (number needed to treat = 1/absolute risk reduction). However, there was no statistically significant difference in the risk of developing symptomatic urinary tract infection, fever or dysuria after urodynamics. In contrast to this systematic review, our study suggest that there may be benefit in providing a single dose of antibiotics after urodynamics in women with UI and advanced POP. Incidence of symptomatic urinary tract infection was 19.2% in the observation

arm. There were no symptomatic urinary tract infections in the antibiotic arm. However, there is a need for further randomized controlled trials (RCTs), focused on women with POP, to clarify this issue.

Concluding message

This non-randomized study showed that prophylactic antibiotics may reduce the risk of symptomatic urinary tract infection after urodynamics in women with UI and advanced POP. There is a need for further RCTs before making definitive recommendations for this group of patients.

References

1. Foon R, Toozs-Hobson P, Latthe P. Prophylactic antibiotics to reduce the risk of urinary tract infections after urodynamic studies. Cochrane Database Syst Rev. 2012 Oct 17;10:CD008224.

Disclosures

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