

## USEFULNESS OF ANTIBIOTIC PROPHYLAXIS IN INVASIVE URODYNAMICS IN FERTILE AND IN POST MENOPAUSAL FEMALE SUBJECTS

### Hypothesis / aims of study

Invasive urodynamics is essential for the assessment of detrusor filling and voiding phase in patients with stress urinary incontinence (SUI). Recent studies have shown that invasive urodynamic investigation causes a low incidence of urinary tract infection (UTI) in the female (1-2). Nevertheless until today there are few data regarding the need of antibiotic prophylaxis to prevent the UTI in female subjects who underwent invasive urodynamics.

We conducted a prospective study to verify the incidence of UTI in fertile and in post menopausal females who underwent invasive urodynamics and to evaluate the usefulness of an oral antibiotic prophylaxis to prevent UTI in these subjects.

### Study design, materials and methods

A total of 324 consecutive female subjects undergoing conventional invasive urodynamics for SUI were included in the study. There were 62 fertile females, aged between 23 and 48 years (mean age 39 yrs) and 262 menopausal females between 34 and 82 years (mean age 62 yrs). A mid voided urine specimen was sent for microscopy and sensitivity testing 7 days before and 3 days after urodynamic investigation. Females with a case history of recurrent cystitis or with a culture of organism >10<sup>5</sup> colony – forming units at the urine analysis performed 7 days before urodynamic evaluation were not enrolled in the study. All subjects performed a free flow study and a pressure flow study (PFS) using a bi-lumen single-use 6-French catheter. Standard aseptic methods were used. Females of the two groups were randomized in single blind to receive a dose of norfloxacin 400 mg orally as antibiotic prophylaxis 12 hours before urodynamic investigation. Seven days after all subjects were reassessed on the result of urine analysis performed on third day from urodynamic investigation and on the possible reports of hyperpyrexia above 37°C and of hematuria if occurred in the first 72 hours after urodynamic investigation. The subject was considered positive for UTI if at least one of the above pathological conditions was present. For statistical analysis Chi square test was adopted and  $P < .05$  was considered significant.

### Results

71 (21.9%) of 324 females resulted affected by UTI. In particular 17 (24%) of 71 subjects with UTI were fertile females and 54 (76%) of 71 with UTI were menopausal females. 159 (49%) of 324 females received antibiotic prophylaxis while the remaining 165 (51%) of 324 females did not received antibiotic prophylaxis. 126 (79%) of 159 who received prophylaxis did not develop UTI while 33 (21%) of 159 who received prophylaxis developed UTI. 127 (77%) of 165 who did not receive prophylaxis did not develop UTI while 38 (23%) of 165 who did not receive prophylaxis developed UTI. The results related to the incidence of UTI in fertile and menopausal females are reported in table I and table II. Statistical analysis revealed no difference about the incidence of UTI between females who underwent antibiotic prophylaxis and those who did not receive it.

	Females with UTI	Females without UTI	Total
Antibiotic prophylaxis	9 (31%)	20 (69%)	29
	$P > .05$	$P > .05$	
No Antibiotic prophylaxis	8 (24%)	25 (76%)	33

Table I : incidence of UTI in 62 fertile females

	Females with UTI	Females without UTI	Total
Antibiotic prophylaxis	24 (18%)	106 (82%)	130
	<i>P&gt;.05</i>	<i>P&gt;.05</i>	
No Antibiotic prophylaxis	30 (23%)	102 (77%)	33

Table II : incidence of UTI in 262 menopausal females

### **Interpretation of results**

Our study revealed an overall incidence of UTI higher than other studies previously published. In fact these authors administered antibiotic prophylaxis with a length and a dosage higher than the ones we adopted. In particular we observed that incidence of UTI in menopausal females is higher than in fertile females. This aspect could be explained by the reduced vascularization of the urethrovesical tissue due to the ageing and by the reduced local immunity as can be usually found in menopausal females. When we analyzed the two groups of subjects separately, we observed that the incidence of UTI between females who received antibiotic prophylaxis and those who did not receive antibiotic prophylaxis is not statistically different. This aspect may suggest the relative need of an antibiotic prophylaxis in females that underwent an invasive urodynamic study. Nevertheless, we believe that an antibiotic prophylaxis is always recommended in menopausal females because in this group 76% of UTI is developed while a relative indication in fertile females is suggested.

### **Concluding message**

The possibility of developing a UTI after invasive urodynamic investigation with antibiotic prophylaxis is moderate even if menopausal females represent the group more at risk of infection.

### **References**

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Neurourol Urodyn 18: 647, 1999.
2. Morbidity following pressure-flow studies (PFS). Are prophylactic antibiotic necessary ?  
Neurourol Urodyn 15: 304, 1996