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Incidence of Urinary Tract Infection Following Urodynamic Study in Women with Pelvic Organ Prolapse

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Abstract: ***Prolapse and Urinary incontinence is a common and distressing gynaecological problem. Urodynamics is a valuable investigation in the management of urinary incontinence. However, urinary tract infection (UTI) is a known complication of catheterising the bladder. Aims and Objectives: Aim is to study the incidence of urinary tract infection after urodynamic study in women with pelvic organ prolapse. Study Design:prospective study. Materials and Methods: 60 consecutive patients presenting with pelvic organ prolapse attending clinics in OBG department at Father Muller Medical College from: November 2016 to april 2018. Results: In our study a total of 60 women underwent urodynamic study during the study period. All women gave a sample of urine on day three following the test. Most of these patients were postmenopausal and had higher degree of prolapse. Out of 60 patients 55 (91.66%) had no UTI, 2 patients had only bacteriuria(3.636%) and 5 patients had UTI. Incidence of UTI in our study was 8.33%. Conclusion: The incidence of UTI was low in our study. This excludes the need for Prophylactic antibiotics but it is recommended that all women should be counselled about UTI during consent taking for the procedure.***

Keywords: pelvic organ prolapse , urodynamic study , urinary tract infection

1. Introduction

Pelvic organ prolapse (POP) are often associated with lower urinary tract symptoms (LUTS) .The prevalence of Pelvic organ prolapse and urinary incontinence ranges from 15 % to 80%.[1] Thus pelvic organ prolapse and urinary incontinence have a significant impact on quality of life and health care costs. Urodynamics has become a standard part of evaluation of patients with Pelvic organ prolapse with urinary incontinence. However, this investigation is an invasive procedure and may precipitate urinary tract infection (UTI)[2]

2. Materials and Methods

This study was undertaken after clearance from the ethical committee of father muller medical college.

Study Design: Prospective study.

The data for the study was collected from patients admitted to the Father Muller Medical College Hospital with pelvic organ prolapse.

Written and informed consent was taken from all patients. Clinical evaluation included medical history, physical examination.

All patients were screened for bacteriuria before the procedure, using microscopy and semiquantitative culture. Only patients with a negative urine culture were considered eligible to take part.

All women were given an information leaflet explaining thepurpose of the audit. Urine collected during the free flow study was sent for culture sensitivity testing.[2-4]

The bladder was catheterised with a size 8 French dual channel catheter. The operator washed hands and used alcohol rub before wearing sterile gloves. The vulva and external urethral meatus was cleaned with sterile normal saline. The catheter was inserted in an aseptic manner without touching the vulval skin. The flow meter, trolley and bed was cleaned with antiseptic wipes after each study. All women were given a labelled form and container to give a mid-stream sample of urine for culture sensitivity test on the third day after the urodynamic test.[2-4]

UTI was defined as presence of significant bacteriuria and pyuria in the urine report. Significant bacteriuria was taken to be a colony count of greater than 10^5 CFU/ml (colony forming unit). Pyuria was defined as greater than 10 white cells per litre of uncentrifuged urine in a haemocytometer. Bacteriuria without pyuria was considered as bacterialcolonisation of bladder and not an infection.[2-4]

Inclusion Criteria

- Women with pelvic organ prolapse with or without urinary symptoms
- Age > 40 years

Exclusion Criteria

- Women with absence of pelvic organ prolpase
- Presence of concomitant neurologic disorders

3. Results

In our study a total of 60 women underwent urodynamic study during the study period. All women gave a sample of urine on day three following the test.

In our study out of 60 patients who underwent urodynamic study55patients (91.66%) showed no evidence of UTI post urodynamic study.

Out of 55patients, 2 patients had onlybacteriuria (3.636%) indicating bacterial colonisation.

UTI was documented in 5 patients with incidence of 8.33%. Most of these patients were postmenopausal and had higher degree of prolapse.

The most common organisms in these patients was E coli. It was sensitive to almost all common antibiotics and commonest was Nitrofurantoin.

Variables	Subgroup	No UTI	UTI	%
Age In years	40-50	18	3	16.66
	50-60	15	1	6.66
	>60	22	1	4.54
Parity	P_2	9	2	22.2
	P_3	16	1	6.25
	$>P_3$	30	2	6.66
Menopause status	perimenopausal	11	1	9.09
	postmenopausal	44	4	9.09
DM		9	1	11.1
POP Q staging	1	9	-	-
	2	18	2	11.1
	3	25	3	12
	4	3	-	-
Degree of cystocele	1	6	1	16.66
	2	30	3	10
	3	19	1	5.26
POST UDS		55	5	9.09

Total	60	Percentage
Women with no UTI	55	91.66%
Only Bacteriuria	2	3.636%
UTI	5	8.33%

Microorganism	Bacteriuria	UTI	Antibiotic sensitivity
Klebsiella species	-	1	Levofloxacin
Escherichia coli	1	4	Nitrofurantoin
Enterococcus feacalis	1	-	

4. Discussion

The incidence of UTI following urodynamics in our study was 8.33%. This incidence was comparable to most published reports.

Study	Incidence of UTI
Our study	8.33%
J Putran et al[2]	2.9%
Nóbrega MM et al [4]	4.3%
Choe J.H. et al [6]	6.2%
Bombieriet al[5]	8%
Nadeem M et al[3]	12%

Although UTI is an uncommon cause of incontinence, it will aggravate any existing urinary symptoms. In addition, the presence of a UTI can invalidate the results of urodynamic study. Urinalysis is mandatory before urodynamic study.

In our study urinalysis of the patient was done on admission. Study included patients with no evidence of UTI. This would exclude women with an ongoing UTI from undergoing urodynamic testing.

The commonest pathogen for UTI was E. coli. This was sensitive to nitrofurantoin in all cases.

Thus it is adviced to councel the women regarding UTI being the potential complication after urodynamic study.

5. Conclusion

Urodynamic study has become a standard part of evaluation of patients with Pelvic organ prolapse with urinary incontinence. However, this investigation is an invasive procedure and may precipitate urinary tract infection. Proper aseptic precaution during the procedure can prevent the occurrence of UTI.In conclusion; UDS appears to be a safe medical procedure associated with a low incidence of UTI.

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