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CORRELATION BETWEEN THE OVERACTIVE BLADDER SYMPTOMS (OAB) IN FEMALE AND THE URODYNAMIC (UDS) FINDINGS.

Hypothesis / aims of study
The primary objective of this study is to assess the correlation between the OAB symptoms and the Urodynamic finding in female patients. The secondary objective is to report the predictors for detrusor overactivity (DO) and bladder outlet obstruction (BOO).

Study design, materials and methods
This is a retrospective study for all the urodynamic studies that were done for female patients with OAB symptoms from1994 to 2008 in one center. Patients were interviewed before the study and the symptoms severity were recorded. The urodynamic findings were reported by one Physician (JG). Patients with incomplete urodynamic study, neurogenic disorders, previous lower urinary tract surgery, pelvic radiation therapy, urinary tract infection or using cathetrization were excluded. The BOO was defined with the obstruction coefficient formula. Any value above 0.35 was considered as BOO. (*OCO* = p_{det},Q_{max}/(40+2Q_{max}). Spearman correlation coefficients were determined to evaluate the correlation between the OAB symptoms and the urodynamic finding. To determine the independent factor of DO and BOO, multivariate logistic regression analysis was used

Results
We have included 1975 UD reports in the final analysis. The mean age of patients was 60.8 years (20-90) and the median duration of the symptoms was 18 months (3-120). All patients had symptoms of urgency with or without urgency urinary incontinence (OAB). The presence of frequency was reported in 1793 (90%), nocturia in 1435 (72%), slow stream in 978 (49%), incomplete emptying in 1223 (61.9%), urgency urinary incontinence (UUI) in 1522 (77%), stress urinary incontinence (SUI) in 1345 (68.1%) and mixed urinary incontinence (MUI) in 1177 (59.6%). The stress leak test was positive in 674 (34.1%) patients. The DO was recorded in 746 patients (37.8%) and 682 patients (34.5%) had evidence of BOO (OCO >0.35).

Interpretation of results
The urgency had negative correlation with maximum cystometric capacity (MCC) (-0.11) and positive correlation with DO (0.22). The frequency had negative correlation with maximum flow rate (MFR) (-0.07), MCC (-0.17) and stress leak test (-0.10) and had positive correlation with BOO. Nocturia had negative correlation with MFR (-0.14) and MCC (-0.17) and had positive correlation with DO (0.09). Slow stream had negative correlation with MFR (-0.12) and had positive correlation with post void residual (PVR) (0.09). Incomplete emptying did not have any correlation. UUI had positive correlation with DO (0.17). SUI had negative correlation with PVR (-0.12) and positive correlation with stress Leak test (0.23) MUI showed negative correlation with PVR (-0.08) and BOO (-0.1) (Table 1). Multivariate analysis showed severe frequency was suggestive for presence of BOO (odd ratio 1.6) while MUI (odd ratio 0.6) was significant for the absence for BOO. Urgency, nocturia and UUI were highly significant for presence of DO with odd ratio of 5.5, 2.2and 2.6 respectively (Table 2).

Concluding message
Female patient with OAB usually has smaller bladder capacity and higher incident of DO. About third of the patients had evidence of BOO. Severe frequency had significant positive correlation with BOO

Table 1: Correlation between the OAB symptoms and UD findings.

Symptoms		MFR	Voided Volume	PVR	MCC	DO	BOO	Stress Leak
Urgency	Correlation	-.005	-.056	-.033	-.115	.222	.008	.013
	P value	.829	.013	.150	.000	.000	.775	.569
Frequency	Correlation	-.078	-.074	.047	-.184	.053	.085	-.103
	P value	.001	.002	.047	.00	.028	.00	.00
Nocturia	Correlation	-.149	-.155	.051	-.170	.092	-.035	-.052
	P value	.000	.000	.055	.000	.001	.280	.049
Slow Stream	Correlation	-.124	-.053	.094	.045	.077	.060	-.001
	P value	.000	.101	.004	.168	.018	.125	.971
Incomplete emptying	Correlation	-.030	-.015	.022	-.060	-.059	.042	-.015
	P value	.301	.599	.449	.038	.043	.232	.595
SUI	Correlation	.056	-.006	-.123	-.023	-.006	-.035	.237
	P value	.042	.832	.000	.394	.829	.299	.000
UUI	Correlation	-.027	-.028	-.004	-.083	.178	.018	-.024
	P value	.300	.273	.870	.001	.000	.571	.355
MUI	Correlation	.051	.010	-.089	-.035	.047	-.102	.051
	P value	.027	.670	.000	.119	.039	.000	.027

Table 2: Multivariate analysis for presence of detrusor overactivity and bladder outlet obstruction.

Factor	Detrusor Overactivity		Bladder Outlet Obstruction	
	P value	**Odd ratio**	**P value**	**Odd ratio**
Age				
Duration				
Parity				
Urgency	0.00	5.5		
Frequency			0.01	1.5
Nocturia	0.01	2.2		
Slow Stream				
Incomplete Emptying				
Urge urinary incontinence	0.01	2.6		
Stress urinary incontinence				
Mixed urinary incontinence			0.00	0.66

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Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Research Ethic Board for the Capital District Health Authority**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**