THE DIAGNOSTIC ROLE OF TRANSABDOMINAL ULTRASONOGRAPHIC BLADDER WALL THICKNESS IN THE FEMALE URINARY INCONTINENCE

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Hypothesis / aims of study

Urinary incontinence is the disease that mostly affects women worldwide and impaired quality of life. Initial clinical assessment performed in most patients is usually ineffective and urodynamic examination generally provides definitive diagnosis. However, urodynamic study is not practical in all patients. Thus, the diagnosis of urinary incontinence needs useful and practical methods [1].

Study design, materials and methods

The study was performed at our institution between January 2003 and March 2006. The aim of the study was to determine the diagnostic role of bladder wall thickness measured by transabdominal ultrasonography in the 82 female patients recruited from outpatient clinic. Forty-three patients were diagnosed as genuine stress incontinence (GSI) and 39 had non-neurogenic detrusor overactivity (NNDO) after diagnostic workup including urodynamic assessment, while 31 women patients without lower urinary tract symptoms served as a control group. The bladder wall thickness (BWT) was measured transabdominally at supine position in three separate places of the bladder with a volume of 200 ml; the anterior wall, the right and the left lateral wall of the bladder. Data from 3 groups was compared statistically.

Results

There was no significant correlation between mean bladder wall thickness and age in the whole study group and all subgroups. Examination of the 95 % confidence intervals reveals no overlap in all diagnostic subgroups. Mean bladder wall thickness was found to be significantly different in all of the diagnostic groups and whole study group (Table). The positive predictive value of diagnosing NNDO in women with a mean bladder wall thickness greater than 4.88 mm. was 53.9 % and negative predictive value was 90%. Using a mean bladder wall thickness greater than 4.88 mm. as a cut- off value, the sensitivity was 87.1 %, and specificity was 60.8 % for diagnosis of NNDO.

Table. Mean BWT values obtained by transabdominal ultrasonography in the cohort of female urinary incontinence and controls

Groups (n)	Mean BWT ± SD (mm)	95% CI		Min. BWT (mm)	Max. BWT (mm)	p1 <0,001	p2 0,005	p3 0,016	p4 <0,001	p5 <0,001
		Lower limit (mm)	Higher limit (mm)							
NNDO (39)	5,14±0,34	5,03	5,25	4,33	5,9					
GSI (43)	4,58±0,47	4,44	4,73	3,30	5,3					
Control (31)	4,88±0,27	4,77	4,98	4,30	5,4					
Total (113)	4,86±0,45	4,77	4,94	3,30	5,9	p6: <0,001				

p1:NNDOXGSI, p2:GSI X Control, p3:NNDO X Control, p4:NNDO X Other (GSI+ Control), p5: GSI x Other (NNDO+ Control), p6: Total group, (p4 ve p5 student t test, p6 one way anowa)

Interpretation of results

Our findings show the bladder wall thickness measurement by 2D-transabdominal ultrasonography may be a useful and sensitive screening test in the diagnosis of both urge incontinence from NNDO and stress incontinence from GSI.

Concluding message

The prospective case-control study assessed the diagnostic role of bladder wall thickness measurement by 2D-transabdominal ultrasonography reveals that bladder wall thickness measurement is a useful and sensitive screening test in the diagnosis of both urge incontinence from NNDO and stress incontinence from GSI.

References

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