

THE EVALUATION OF WEAK CONTRACTILITY IN ELDERLY WOMEN BY PROJECTED ISOVOLUMETRIC PRESSURE

Hypothesis / aims of study

Detrusor underactivity (DU) is a common cause of lower urinary tract symptoms (LUTS) in both men and women, yet is poorly understood. DU is present in 9-48% of men and 12-45% of elder women undergoing urodynamic evaluation for non-neurogenic LUTS(1). A diagnosis of detrusor underactivity is possible neither by LUTS nor by uroflowmetry, but only by pressure flow study. Detrusor contractility is one aspect in detrusor underactivity, can be evaluated by projective isovolumetric pressure (PIP) (2) and Watt factor(3). Especially PIP1 can be used to evaluate detrusor contractility in elderly women. PIP1 is defined by the formula, that is, $P_{det}@Q_{max} + Q_{max}$, which is obtained by pressure flow studies. The aim of this study was to investigate the characteristics of weak detrusor contractility in elderly women at our hospital.

Study design, materials and methods

Our accumulated urodynamic data between 2012 and 2016 was retrospectively examined for this study. Totally 108 patients were found in women (more than 50 year-old) to evaluate the detrusor contractility of women who were referred to our hospital for evaluation of LUTS. We mainly used projected isovolumetric pressure 1 (PIP1) to evaluate detrusor contractility for women. Normal contractility is defined as $PIP1 = 30-75$, therefore, weak detrusor contractility was defined as PIP1 less than 30.

Table 1. Urodynamic parameters in elderly patients

	weak detrusor contractility *	Non weak detrusor contractility*
N	32	76
Age(year-old)	72.8±4.6	69.8±6.9
Qmax(mL/s)	15.0±8.4	18.5±9.7
PVR(mL)	55±79	48±79
Qmax in PFS(mL/s)	12.4±4.9	15.1±9.5
Pdet@Qmax(cmH ₂ O)	10.4±5.5	28.2±16.6
PIP1(cmH ₂ O)	22.8±5.5	43.3±4.4
WF max (μW/mm ²)	10.8±9.6	21.0±4.4

*Weak detrusor contractility was categorized by PIP1.

Table 2 Presumed etiological factors and symptoms in elderly women with weak detrusor contractility

Diseases and Conditions	Frequency
Pelvic Organ Prolapse	25% (13/44)
Stress urinary incontinence	31% (11/35)
Mixed urinary incontinence	25% (2/8)
Dry OAB	0% (0/7)
Others* including NB	42% (6/14)
total	30% (32/108)

*Others included neurogenic bladder, difficulty on urination, and unknown.

Results

Thirty two women out of 87 women met the criteria of weak detrusor contractility, that is PIP1 less than 30. The age of 32 women with weak detrusor contractility was 72.8 ± 4.6 year old. The comparison of urodynamic parameters between women with weak detrusor contractility and without weak detrusor contractility was shown in table 1. PIP1 seemed to be associated with WF max. The disease category of women with weak detrusor contractility was shown in table 2.

Interpretation of results

The frequency of women with weak detrusor contractility was 30 % in urodynamic data base of our hospital. The frequency of weak detrusor contractility in each disease and condition was between 0% and 42%. Even though these results are very limited because this study is a retrospective analysis.

Concluding message

The frequency of elderly women with weak detrusor contractility was 30% in our hospital using PIP1.

References

1. Eur Urol 65(2):389-398, 2014
2. Neurourology and Urodynamics 23:184-189, 2004

3. Am J Physiol 251:R225-R230,1986

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Saitama Medical University Hospital IRB **Helsinki:** Yes **Informed Consent:** No