674

Tunoyama K[1], Sakakibara R[2], Takahashi O[3], Sugiyama M[3], Tanabe K[1]
1. *Department of Urology, Tokyo Women's Medical University,* ***2.*** *Neurology Division, Department of Internal Medicine, Sakura Medical Center, Toho University,* ***3.*** *Department of UroloClinical Physiology Unit, Sakura Medical Center, Toho Universitygy, Tokyo Women's Medical University*

FIVE-GRADE BLADDER SENSORY MEASUREMENT

Hypothesis / aims of study
Bladder sensation during urodynamics has been measured in several ways: e.g., first sensation, normal desire to void, maximum desire to void, etc. However, no definite sensory measures have been available that detect detrusor overactivity (DO) by sensation. Therefore, we devised five-grade bladder sensory measurement and tried to verify whether 1) it reflects normal bladder filling sensation, and 2) it is capable to detect DO during urodynamics.

Study design, materials and methods
Total 107 patients (52 men, 55 women, mean age 67.7 years) were enrolled in the study. We performed uro-neurological examination, free flowmetry, post-void residual measurement and simultaneous electromyography-cystometry. During slow filling (50 ml/min.), we asked the patients as to bladder sensation in five degrees; 1: first sensation, 2: obviously greater than 1 but less than 3, 3: normal desire to void when he or she usually goes to toilet, 4: obviously greater than 3 but less than 5, 5: strong desire to void as he or she cannot hold urine any more, bladder capacity). We also asked the subject at the same time as to hardness in two degrees; A: feel moderately hard to hold urine, B: feel extremely hard to hold urine, these sensation might be felt particularly when they have bladder sensation of grade 4 or more. We repeated the test once for reproducibility.

Results
Five-grade bladder sensory measurement was feasible and reproducible in all patients, except for elderly patients with cognitive decline. We analyzed 161 subjects for this study. 74 subjects (46%) had cystometric normal detrusor. In this group, 1 sensory grade increase was correlated with mean 72.5 ml bladder volume increase during filling (Fig.1). 87 (54%) had DO with mean bladder pressure increase of 32.2 cmH_2O. In this group, 67 (77%) had close correlation between DO and bladder sensation. In this subgroup, 1 sensory grade increase was correlated with mean 68.1 ml bladder volume increase, which was less than that in normal detrusor group. Twenty subjects (23%) had no apparent sensory grade increase just before DO and during DO. Considering the factors affecting sensory-DO correlation, if we subdivided DO into terminal type and phasic type, correlation between DO and bladder sensation was found in 75% of terminal type and in 81% in phasic type. In contrast, subjective hardness was reported almost equally in normal detrusor group and DO group (Fig2). Other abnormal sensations were not reported in DO group.

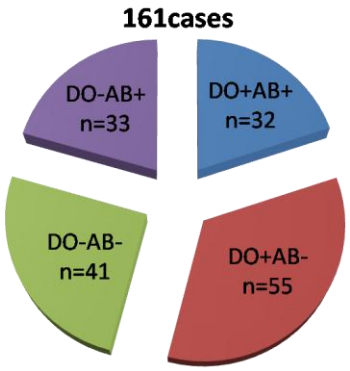
Interpretation of results
77% of DO provoked rapid increase of bladder sensation than normal detrusor, which seems to be the urodynamic defined urgency. However, 23% of DO could not be perceived even by five-grade bladder sensory measurement, suggesting that bladder is not a super-reliable witness.

Concluding message
Using five-grade bladder sensory measurement, 77% of DO provoked rapid increase of bladder sensation than normal detrusor. This seems to be the urodynamic defined urgency.

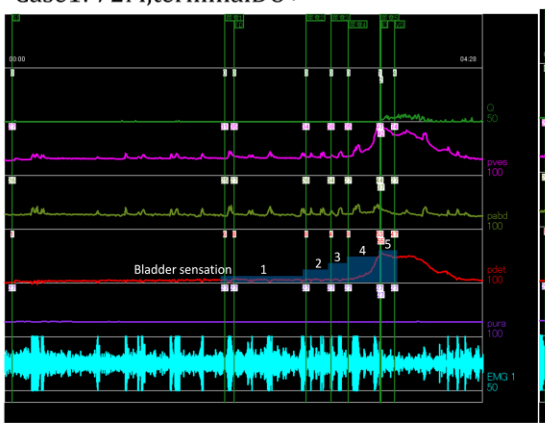
Fig.1: Bladder volume increase in each sensation

		Bladder volume increase in each sensatin (mL)					
Sensation grade		0 to1	1 to 2	2 to 3	3 to 4	4 to 5	Mean 1to5
DO- (n=74)		123.8	39.8	46.2	36.7	70	72.5
DO+ (n=87)	terminal DO (n=51)	120.1	40.3	30.8	36.7	52.2	73.3
	phasicDO (n=36)	90.9	35.9	32.6	36.7	47.4	60.8
	Total (n=87)	108.1	38.6	31.5	36.7	50.4	68.1

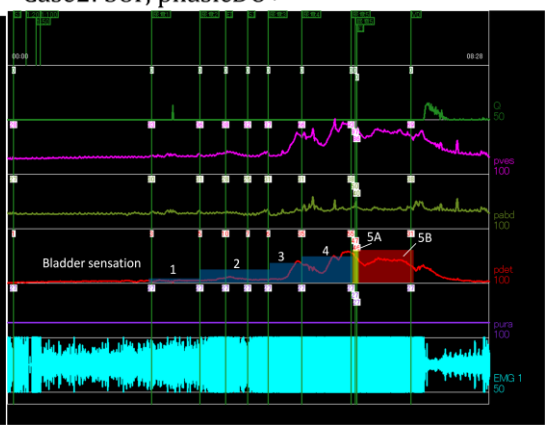
Fig.2: Propotion of subjects reported subjective hardness



Case1: 72M,terminalDO+



Case2: 58F, phasicDO+



Specify source of funding or grant	**no**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require eithics committee approval because	**this presentation is only data analysis.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**