

PHASIC OR TERMINAL DETRUSOR OVERACTIVITY IN WOMEN: AGE, URODYNAMIC FINDINGS AND SPHINCTER BEHAVIOR RELATIONSHIPS.

Hypothesis / aims of study

Detrusor overactivity (DO) is a frequent urodynamic diagnosis in women with urge syndrome. According with the ICS recommendations, it is usual to distinguish phasic (**P**) (wave(s) with or without leakage) from terminal (**T**) DO (single contraction resulting in leakage and micturition) [1]. Our purpose was to search for correlation between **P** or **T** DO and age, urodynamic findings or sphincter behavior.

Study design, materials and methods

DO was the urodynamic diagnosis for 172 women among 493 successive female patients referred for LUTS. Among these 172 women, 77 had a history of neurological disease.

Patients were stratified in 4 sub-groups: pre- (18-44y), peri- (45-54y), post-menopause (55-74y) and oldest old (≥ 75 y). Exclusion criteria were dementia and grade ≥ 2 prolapse.

Cystometry was performed with a triple lumen catheter 7F at a filling rate of 50 mL/min in seated position using a Laborie's unit.

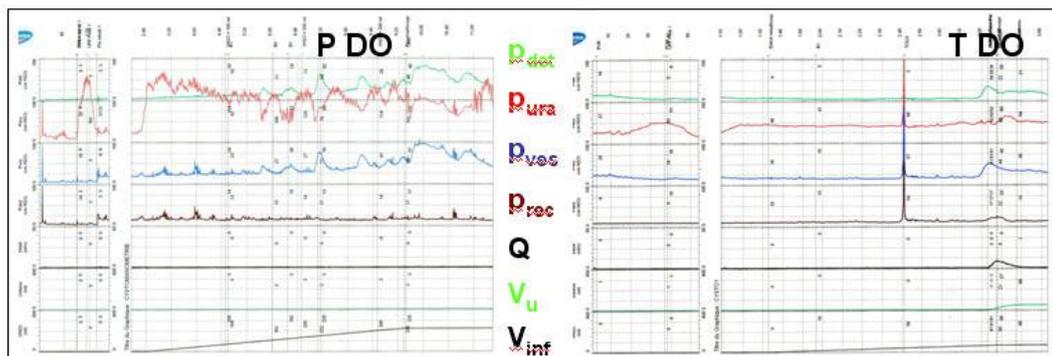
The urethral sensor was positioned at the level of the maximum urethral closure pressure for sphincter behavior analysis. Displacement of the urethral sensor during filling lead to exclusion.

To avoid instrumental errors, we chose a variation of at least 5 cmH₂O in pressure (detrusor or urethra) to assert DO or sphincter response.

In case of decreased compliance, a second cystometry at a filling rate of 20 mL/min was performed to conclude between compliance and DO.

Sphincter response was classified as relaxation (re) before or during DO, or remaining steady (st).

Recordings were reviewed independently by three investigators.



Results

Occurrence of **P** and **T** DO was similar in the whole population: 90 (52.3%) **P** and 82 (47.4%) **T**. From pre-menopause to oldest old, incidence of age on **P** DO was weak while it was significant on **T** DO (table) ($p = .0005$):

age group	18-44 yr	45-54 yr	55-74 yr	≥ 75 yr
nbr pts P DO	32	15	28	15
nbr pts T DO	9	17	27	29

Comparison in age groups show that vs the total population of each group, the percentage of **P** DO remained constant (12%) while that of **T** DO increased with age, from 5% to 45%.

In each sub-group with DO, occurrence of **P** or **T** DO was not associated with a history of neurological disease.

Uninhibited contraction occurred at a smaller bladder volume in the **P** group: 149 ± 95 vs 221 ± 113 mL ($p < .0001$).

Sphincter behavior: steady sphincter was predominant in the **T** DO subgroup: 46.9% vs 38.0%. In each DO sub-group, the ratio of steady sphincter increased significantly in the ≥ 75 y sub-group (**P**: 53.0% vs 34-29-38%; **T**: 64% vs 44-38-37%).

Interpretation of results

To make a distinction between **P** and **T** DO is sometimes difficult: high vesical pressure or/and pain during cystometry might lead to stop the filling. Distinction of **T** DO from decreased bladder compliance needs to repeat the cystometry at lower filling rate to assert or to invalidate DO.

Occurrence of **T** DO is significantly associated with aging as it has been previously reported [2] while the percentage of **P** DO remained nearly constant in all age groups.

Among the whole population, occurrence of DO was higher in the group with history of neurological disease but without effect on the nature of DO.

Incidence of steady sphincter in the oldest old group might be the consequence of aging on the urethral function as the threshold of urethral sensation increased in elderly [3].

Concluding message

Steady sphincter during uninhibited detrusor contraction for both P and T DO, and occurrence of T DO appear as specific of aging. In elderly, occurrence of steady sphincter may be associated with loss of sensory nerve function in the urethra, and occurrence of T DO could be related to the change in muscarinic receptors subtypes and the increase in non-neuronal acetylcholine release from urothelium with aging.

References

1. NAU 2002; 21: 167-178
2. Urologe 2004; 43: 542-546
3. NAU 2007 ; 26 :981-84

<i>Specify source of funding or grant</i>	None
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	No
<i>This study did not require ethics committee approval because</i>	It involved retrospective analysis of urodynamic studies from a database.
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No