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ACTIVITY-RELATED VERSUS URGE-RELATED INCONTINENCE EPISODES IN WOMEN WITH URODYNAMIC STRESS INCONTINENCE

Hypothesis / aims of study

In studying reports of involuntary urine loss on a new computerized bladder diary (Life-Tech, USA), we found that 54% of patients with urodynamic stress incontinence (USI) and a negative test for detrusor overactivity (DO) reported a predominance of urge-related over activity-related involuntary urine loss episodes ("leaks"). We hypothesized that the urge-related leaks among our USI patients might be related to low voided volume bladder diary measurements.

Study design, materials and methods

Three-day bladder diaries were collected from 163 female patients with urologic symptoms who had been referred to a tertiary urogynecologic center. All of these patients underwent a full urodynamic assessment consisting of history, physical examination, uroflowmetry and subtracted video cystometry following ICS standards. We report results from 57 patients selected from this population (median age 57 years) who had USI and no DO. 55 of these 57 patients completed Urogenital Distress Inventory (UDI) short-form questionnaires. The analysis of leaks recorded on the bladder diary consisted of: (1) average number of leaks per 24 hours, (2) average leak size (graded 1-3) and (3) percentages of leaks accompanied by urge ("urge-related") and caused by an activity ("activity-related"). We classified the leaks reported by each diary as “urge-predominant” or “activity-predominant” if the number of urge-related leaks exceeded the number of activity-related leaks or vice versa, respectively. Diary measurements of average voided volume (V_{avg}) were expressed as percentiles within a reference population of 161 asymptomatic women after adjusting for relationships of V_{avg} to age and 24-hour volume [1,2]. We divided the UDI patient diaries arbitrarily into "low” and “normal” voided volume subgroups – V_{avg} <= or > the 30th percentile of the reference population, respectively. A probability (“P”) <= 0.05 was our criterion for “statistical significance".

Results

Fourteen diaries reported no leaks, and eight diaries reported equal numbers of urge and activity related leaks. Of the remaining 35 diaries, 16 reported activity-predominant leaks, and 19 reported urge-predominant leaks. The Table compares the low and normal V_{avg} subgroups of these 35 diaries. Compared to the normal V_{avg} subgroup, the low V_{avg} subgroup had significantly more urge-predominant leaks (Figure) and also had a higher incidence of urgency and significantly higher UDI, scores (Table). The low V_{avg} subgroup also tended to have lower cystometric bladder capacities, but this difference did not reach statistical significance.

Table. Low-Voided-Volume versus Normal-Voided-Volume USI Subgroups

	“Low” V_{avg}	**“Normal” V_{avg}**	**P**
N	28	29	
Urge-Predominant leaks (% of subgroup)	73.7%	31.3%	0.001
Activity-Predominant leaks (% of subgroup)	26.3%	68.8%	
Cystometric bladder capacity (median)	450 ml	500 ml	0.11
Urgency symptom (% of subgroup)	71.4%	46.4%	0.04
UDI score (median)	52.8	22.2	0.001

“P” = probability of no difference between groups.
“N” = number of diaries in the two V_{avg} subgroups.

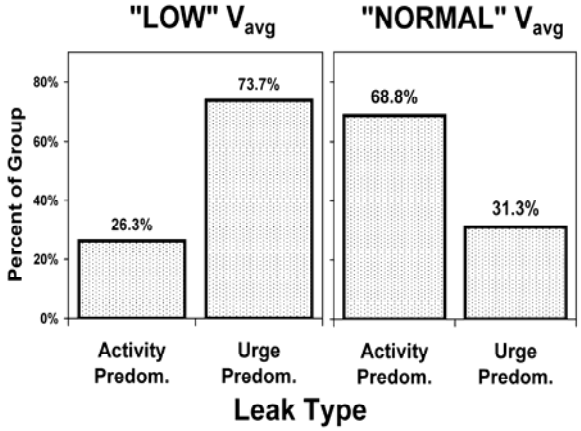

Figure. Leak type versus average volume voided (“V_{avg}”). “Activity Predom.” leak type diaries are bladder diaries reporting more activity-related than urge-related leaks. Vice versa for “Urge Predom.” leak type diaries.

Interpretation of results

We find that, among USI patients with no DO, there is a subgroup of patients with low voided volume, high incidence of urge related leaks, high incidence of urgency and relatively severe symptoms as indicated by high UDI scores. Following are possible explanations of the existence of this low voided volume USI subgroup: (1) The low voided volume USI patients might have uninhibited detrusor contractions during everyday life that were not observed on urodynamic testing [3]. (2) The subgroup might simply consist of patients with more severe stress incontinence who void more frequently as a defensive measure. (3) The subgroup might have low bladder capacities due to causes other than detrusor overactivity. The higher UDI scores, the higher incidence of urgency and the lower cystometric bladder capacity (if it were proven to be significant) in the low voided volume subgroup all support hypotheses 1 and 3. Leak point pressure data, which was not routinely obtained from our patients, might help test hypothesis 2 as well as other possible relationships of intrinsic sphincter deficitncy to the existence of the low voided volume USI subgroup.

Concluding message

Urge-accompanied incontinence with low voided volumes, a high incidence of urgency and relatively severe incontinence symptoms in a subgroup of patients with USI and without DO may represent an interesting USI subgroup. Further study is needed to determine the validity and mechanisms underlying the separation of USI into these two subgroups.

References

1. BJU International 93:1257, 2004
2. www.icsoffice.org/publications/2005/PDF/0138.PDF, 2005
3. Brit. J. Urol 73, 242, 1994

FUNDING: Life-Tech

DISCLOSURES: Parsons: Research grant from Life-tech. Amundsen: Research grant from Life-Tech. Cardozo: Research grant from Life-Tech. Vella: None. Webster: Consultant to Life-Tech.

HUMAN SUBJECTS: This study was approved by the Duke University Medical Center Institutional Review Board and Kings College Hospital Ethics Committee and followed the Declaration of Helsinki Informed consent was obtained from the patients.