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CLINICAL SIGNIFICANCE OF LIDOCAINE PRESSURE FLOW STUDIES FOR LUTS IN OLDER MALE SUBJECTS WITHOUT NEUROLOGICAL DISORDER

Hypothesis / aims of study
Reactivation of C fiber afferents is considered one cause of detrusor overactivity (DO) in older men with bladder outlet obstruction1). Intravesical instillation of lidocaine is thought to exert its effect by blocking C fibers2). Although a lidocaine pressure flow study (LPFS) in older male subjects with LUTS and without other neurological disorders is predicted to show changes to PFS factors associated with C fibers, few reports have provided such evaluations. We examined response to a LPFS in older subjects with LUTS and without neurological disorders and assessed the results with reference to PFS findings.

Study design, materials and methods
Participants comprised 58 men (13 controls, 45 men who underwent a LPFS) >60 years old, with International Prostate Symptom Scores >8 and with Quality of Life Index >2. Individuals with neurological disorder, prostate cancer, urethral stricture, or active urinary tract infection, as well as those taking medications that could influence urination, were excluded. The method for PFS in the control and LPFS groups is shown in Figure 1.
We assessed differences in urinary sensation (first desire to void (FDV), normal desire to void (NDV), maximum desire to void (MDV)) and factors associated with DO (volume at DO, maximum pressure at DO, presence of DO) between 2 PFS (control = conventional vs. conventional; LPFS = conventional vs. LPFS).

Results
No differences in subject characteristics were evident between the control and LPFS groups (Table 1). The control group showed no difference in urinary sensation and factors associated with DO between the two conventional PFS. On the other hand, the LPFS group showed that each urinary sensation in LPFS was greater than those in the conventional PFS. As for factors associated with DO, 14 of the 27 subjects (52%) with DO in the initial conventional PFS showed no DO in the LPFS, and BOO (bladder outlet obstruction) index ≥40. In subjects for whom DO persisted, significant differences were seen in Volume at DO and Maximum pressure at DO between the conventional PFS and LPFS (Table 2).

Interpretation of results
This study revealed that reactivation of C fibers in the bladder influenced storage symptoms even in subjects without neurological disorder.

Concluding message
If C fiber activation is reversible and relief of BOO restrains C fiber activation, LPFS offers potential for showing storage status postoperatively. In the near future, we intend to study whether the results of LPFS show any relationship with those of postoperative PFS.

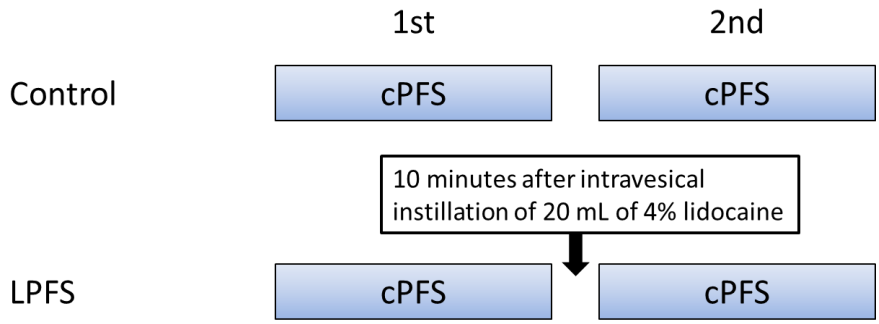

Fig. 1 Methods for PFS in control and LPFS (lidocaine pressure flow study) groups.
The conventional pressure flow study (cPFS) was performed as follows: after placing a 10-F catheter in the rectum to monitor abdominal pressure, an 8-F two-way catheter was inserted through the urethra into the urinary bladder, and physiological saline at room temperature was delivered at a rate of 50 mL/min. In controls, cPFS was performed twice consecutively. In LPFS, cPFS was performed the first time, then the second PFS was performed 10 min after intravesical instillation of 20 mL of 4% lidocaine.

Table 1. Patients characteristics

	Control (n=13)			LPFS (n=45)			p value
	Mean		SD	Mean		SD	
Age (years)	74.2	±	7.1	73.9	±	5.7	0.856
Prostate volume (mL)	38.0	±	22.7	46.2	±	27.7	0.373
IPSS	14.8	±	11.3	19.2	±	7.9	0.092
QOL	3.6	±	2.1	4.2	±	1.5	0.276
FDV (mL)	149	±	79	139	±	68	0.660
NDV (mL)	196	±	85	200	±	86	0.877
MDV (mL)	285	±	102	275	±	122	0.789
Compliance (mL/cmH_2O)	24	±	21	28	±	27	0.678
Number of pts with DO	4			27			
Volume at DO (mL)	235	±	77	204	±	118	0.628
Maximum pressure at DO (cmH_2O)	89	±	39	71	±	39	0.384
PdetQmax (cmH_2O)	59	±	37	70	±	28	0.215
Qmax (mL/s)	6.2	±	3.1	6.0	±	2.8	0.822
PVR (mL)	122	±	79	104	±	119	0.624
BOOI	46	±	40	58	±	31	0.240
BCI	90	±	32	101	±	26	0.210

p value: comparison between groups using the independent t-test. FDV, first desire to void; NDV, normal desire to void; MDV, maximum desire to void; DO, detrusor overactivity; PdetQmax, detrusor pressure at maximal flow rate; PVR, post-void residual; BOOI, bladder outlet obstruction index; BCI, bladder contractility index.

Table 2. Cystometric parameters in control and LPFS (lidocaine pressure flow study)

	Control (n=13)							LPFS (n=45)							
	1st			2nd			p value	1st			2^{nd}			p value
	Mean		SD	Mean		SD		Mean		SD	Mean		SD	
FDV (mL)	149	±	79	165	±	78	0.172	139	±	68	166	±	73	<0.001
NDV (mL)	196	±	85	217	±	86	0.108	200	±	86	254	±	109	<0.001
MDV (mL)	285	±	102	299	±	101	0.102	275	±	122	329	±	118	<0.001
Number of Pts with DO	4			4				27			13			
Volume at DO (mL)	235	±	77	259	±	99	0.344	147	±	70	199	±	97	0.001
Maximum pressure at DO (cmH_2O)	89	±	39	82	±	43	0.078	82	±	43	65	±	30	0.030

p value: comparison between 1st and 2nd measurements using the paired t-test in each group.

References

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Disclosures

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