

DETRUSOR IMPAIRED CONTRACTILITY IS NOT AGE RELATED IN MEN WITH BLADDER OUTLET OBSTRUCTION

Hypothesis / aims of study

Life expectancy has increased linearly in most countries over the past 165 years, with no signs deceleration. The prevalence, severity and dissatisfaction with the lower urinary tract symptoms (LUTS) increase with age. Although there is significant overlap in the prevalence of low urinary tract symptoms, benign prostatic hyperplasia and bladder outlet obstruction, any of these conditions can exist without the others. Data regarding the effects of aging on bladder function of patients with BOO are scarce and poorly documented.

We determined age related urodynamic changes in men with bladder outlet obstruction.

Study design, materials and methods

Data from 255 men 40 years of age or older referred for lower urinary tract symptoms were reviewed. All patients underwent full urodynamic evaluation, including pressure flow analysis, on an outpatient basis. Only normal neurourologic status patients, with a voided volume of at least 100ml during the pressure-flow analysis and bladder outlet obstruction grade on Schafer nomogram greater than 1 were eligible. Exclusion criteria were urinary retention, concurrent urinary infection, previous surgery of the lower urinary tract (prostate, bladder, urethra) and use of medication with major effect on voiding function (alpha-receptor blockers, 5alpha-reductase inhibitors, anticholinergic agents).

Results

Age was normally distributed with mean of 66,1 ± 9,9 years (range 41-87) and a peak in the seventh decade of life. The filling cystometry revealed age related decrease in bladder capacity ($r=-0,270$; $p<0,001$) and compliance ($r=-0,182$; $p=0,004$). The mean prevalence of detrusor overactivity was 63,1% and had a linear trend of increase with age ($p=0,0012$). In the pressure flow analysis there was age related decrease in voided volume ($r=-0,313$; $p<0,001$), bladder voiding efficiency ($r=-0,137$; $p=0,029$), maximum and average flow rates ($r=-0,124$; $p=0,048$) ($r=-0,165$; $p=0,008$). There were no age-related changes in residual volume ($r=0,074$; $p=0,24$), detrusor pressure at maximum flow rate ($r=0,066$; $p=0,295$), maximum detrusor pressure ($r=0,039$; $p=0,537$), linear passive urethral resistance relation (LinPURR) ($r=0,092$; $p=0,144$), bladder outlet obstruction index ($r=0,105$; $p=0,094$) and bladder contractility index ($r=-0,032$; $p=0,616$). (Table.1)

Table.1 – Spearman correlation coefficients and associated p values between age and urodynamic parameters,.

	r	p
Voided volume	-0,313	<0,001
Voiding efficiency (%)	-0,137	0,029
Maximum flow rate (ml/s)	-0,124	0,048
Average flow rate (ml/s)	-0,165	0,008
Flow rate duration (s)	-0,079	0,206 (NS)
Time to maximum flow rate (s)	-0,119	0,058 (NS)
Residual fraction (ml)	0,074	0,240 (NS)
Detrusor pressure at maximum flow rate (cmH ₂ O)	0,066	0,295 (NS)
Maximum detrusor pressure (cmH ₂ O)	0,039	0,537 (NS)
Bladder contractility index	-0,032	0,616 (NS)
Linear passive urethral resistance relation (LinPURR)	0,092	0,144 (NS)
Bladder outlet obstruction index	0,105	0,094 (NS)

r - Spearman correlation coefficient; p – significance level. NS – not significant. A p value <0.05 was considered statistically significant.

Interpretation of results and conclusion

The age related decrease in maximum flow rate in patients with bladder outlet obstruction cannot be attributed to the degree of bladder flow obstruction or impaired detrusor function. Detrusor impaired contractility is not age related in men with bladder outlet obstruction.

References

1. Is there a correlation between the presence of idiopathic detrusor overactivity and the degree of bladder outlet obstruction? Oh MM, Choi H, Park MG, Kang SH, Cheon J, Bae JH, Moon du G, Kim JJ, Lee JG. Urology. 2011 Jan;77(1):167-70.

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<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Federal University of Sao Paulo Ethics Committee
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes