

LOWER URINARY TRACT SYMPTOMS, BLADDER OUTFLOW OBSTRUCTION AND MEDICAL MANAGEMENT; A SIMPLE TOOL TO DECIDE WHO HAS A LOW GRADE OF OUTFLOW OBSTRUCTION (AND IS LIKELY SAFE WITHOUT SURGERY).

Hypothesis / aims of study

A recent extensive review has concluded that there is not enough evidence that not invasive diagnostic tests have sufficient specificity or sensitivity to replace urodynamic testing and pressure flow analysis and to establish a secure diagnosis for men >50 years of age that present with signs and symptoms of lower urinary tract dysfunction. Neither single symptom nor test is pathognomonic for bladder outflow obstruction. Combining the results of diverse tests has shown validity in earlier publications but can require complex calculations or relies on precise but operator dependent parameters e.g. of prostate imaging.

Earlier studies have also demonstrated that especially the men without a high grade of outflow obstruction can (safely) be advised to continue with symptomatic / medical management. A simple and reliable, urodynamically validated, score based on not invasive parameters to select the men with symptoms and prostatic enlargement that will have a low grade or no bladder outflow obstruction will be of help in clinical practice.

Study design, materials and methods

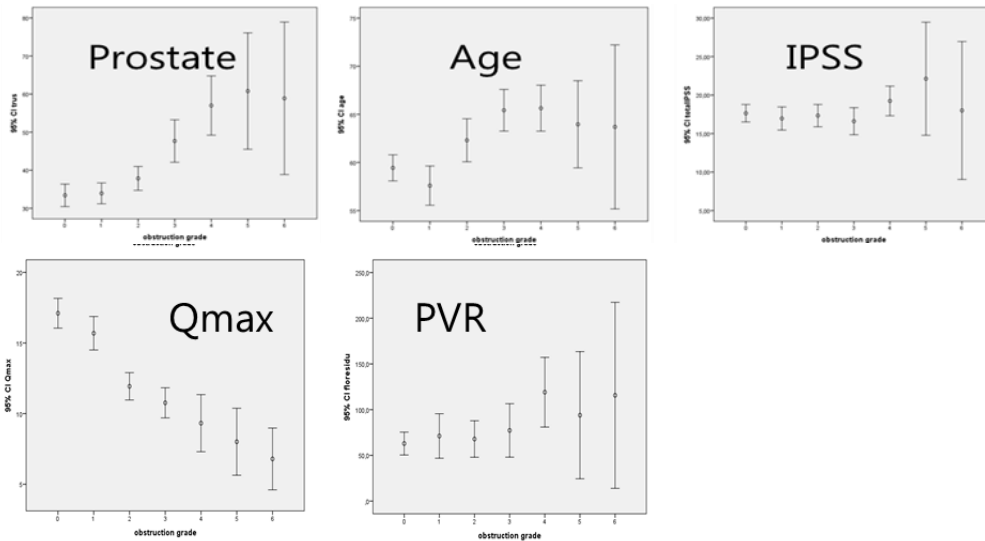
BOO grade		Age	IPSS	Prostate	Qmax	PVR
0	Mean	59,4	17,6	33,4	17,1	62,9
	Sd.	16,8	7,2	18,6	11,5	125,3
	N	599	158	155	465	389
1	Mean	57,5	17,0	33,9	15,7	71,2
	Sd.	16,1	6,6	14,2	8,2	153,5
	N	239	78	106	187	155
2	Mean	62,3	17,3	37,8	11,9	67,9
	Sd.	15,5	7,1	17,0	5,9	111,7
	N	186	96	116	144	123
3	Mean	65,4	16,6	47,7	10,8	77,3
	Sd.	12,8	6,7	27,7	5,3	131,4
	N	137	58	97	96	80
4	Mean	65,6	19,2	57,0	9,3	119,1
	Sd.	12,8	6,5	35,5	9,7	166,8
	N	113	46	82	91	76
5	Mean	63,9	22,1	60,8	8,0	93,9
	Sd.	11,0	8,8	31,7	4,4	120,4
	N	25	8	19	16	14
6	Mean	63,7	18,0	58,9	6,8	115,7
	Sd.	14,1	3,6	26,0	2,8	142,2
	N	13	3	9	9	10
Tot	Mean	60,8	17,6	41,3	14,6	72,7
	Sd.	15,9	7,0	24,7	9,9	134,4
	N	1312	447	584	1008	847

Initially a retrospective data analysis (see table) demonstrated that increasing grade of urodynamic (pressure flow) outflow obstruction was associated with increasing age and size of the prostate and with a decrease in maximum flowrate. (See BOO grade 0-6 in the table; 2 = 'equivocal' in the ICS nomogram and 5 & 6 represent severe outflow obstruction). IPSS and PVR were not strongly associated with BOO grade.

Subsequently combinations of pre urodynamic symptoms; maximum flowrate; PVR and prostate volume were tested for their ability to predict bladder outflow obstruction.

Results

All grades below 3 were considered not to have bladder outflow obstruction. Multivariate analysis showed that age, prostate volume and max flowrate were the strongest predictors of bladder outflow obstruction (grade >3). Figures show relations, X-axes: Grade BOO 0-6.



Further calculations showed that prostate volume (cm³) minus 3x maximum flowrate (clinical prostate score CLIPS) had a significant correlation (R .474) with BOO grade. The CLIPS was tested in a cross tabulation and in persons with CLIPS 'negative' (<zero) incidence of BOO was <10%.

			OBS grade UDI		Total
			Not OBS	OBS	
CLIPS	Not OBS	Count	180	18	198
		% within CLIPS not OBS	90,9%	9,1%	100,0%
	OBS	Count	156	98	254
		% within CLIPS	61,4%	38,6%	100,0%
Total		Count	336	116	452
		% within CLIPSSAFE	74,3%	25,7%	100,0%

Interpretation of results

In patients where 3x maximum flowrate (mL/s) exceeded prostate volume (measured in cm³) there was a very low chance of BOO and this cut-off was tested in ROC analysis resulting in an area of .76 to predict 'no severe BOO'. Adding other parameters as PVR or IPSS could not improve the score. The patients that had a positive CLIPS score (3 x flowrate is less than prostate volume had 40% probability of severe BOO. The patients with CLIPS 'positive' may benefit from urodynamic testing (which may be omitted in CLIPS negative patients). On the other hand CLIPS negative patients do not have a high risk of urinary retention, based on circumstantial evidence, and can safely be advised to continue symptomatic management.

Concluding message

Health management men with BPE and symptoms of lower urinary tract dysfunction in the referred population requires objective indicators. A very simple and urodynamically validated clinical prostate score can select the patients that can safely continue not invasive management. The patient is without high grade of BOO when 3 X his maximum flowrate in mL/S exceeds the prostate volume (in cc³).

References

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Disclosures

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