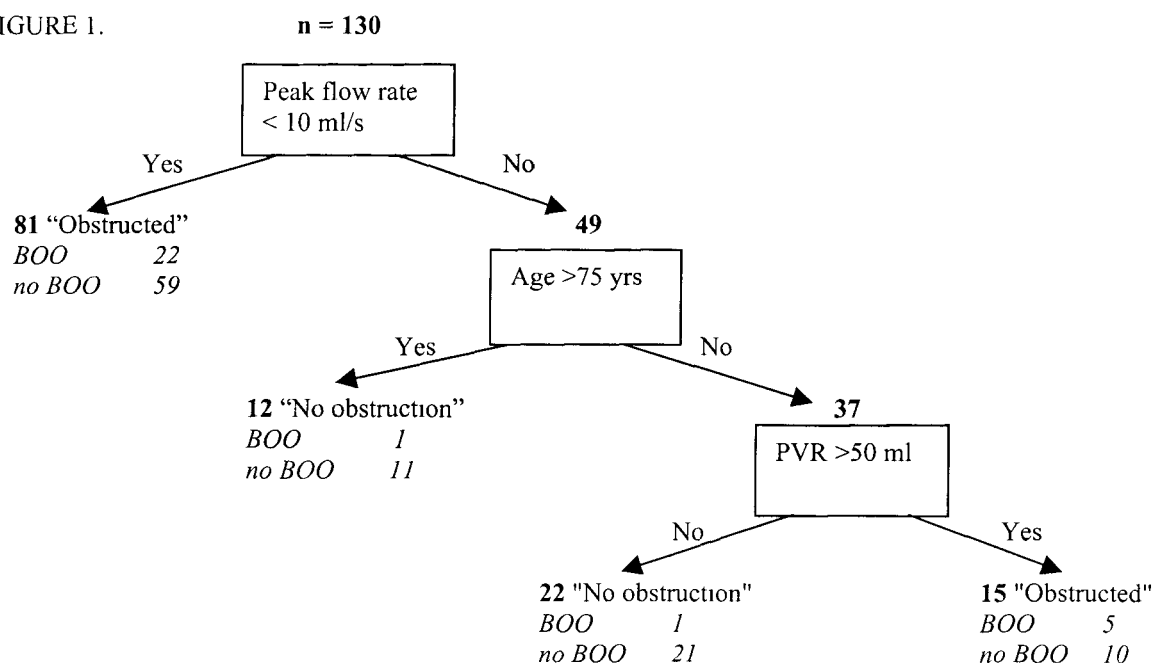


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<p>Title (type in CAPITAL LETTERS, leave one blank line before the text)</p> <p>PERFORMANCE OF AN ALGORITHM TO EXCLUDE BLADDER OUTLET OBSTRUCTION IN OLDER MEN WITH VOIDING SYMPTOMS</p>				
<p><u>Aims of Study</u> Recently, DuBeau and colleagues developed a screening algorithm to exclude bladder outlet obstruction (BOO) in men [1] and achieved sensitivity of 90% and specificity of 41% for BOO. We sought to determine how well this algorithm would perform in a population of older men presenting with lower urinary tract symptoms (LUTS). If it were possible to exclude BOO in a subset of men, then drug therapy for overactive bladder could be started for symptoms of urgency and/or urge incontinence, without the need to first perform invasive pressure-flow urodynamic studies.</p>				
<p><u>Methods</u> The study was retrospective in design. Men aged 55 years and older who presented to our Continence Service with LUTS, and in whom urodynamic studies were performed before drug therapy or surgery were included. Men who could not void and those with voided volumes less than 50 ml in the uroflow study were excluded. Applying the provisional ICS method for definition of obstruction [2], obstructed men were categorised as having BOO while equivocal or unobstructed men were categorised as having no BOO. The screening algorithm incorporated peak urinary flow (Q_{max}) <10 ml/s, age >75 years and PVR >50 ml as diagnostic criteria. Algorithm diagnoses were compared with urodynamic diagnoses. The performance of uroflow criteria of Q_{max} >2SD below the norm on the Siroky nomogram, Q_{max} <15 ml/s and Q_{max} <10 ml/s alone were also determined separately.</p>				
<p><u>Results</u> For the 130 men studied, the median age (range) was 72 years (55 – 96). The median (range) Q_{max} was 9.2 ml/s (2.6 – 23.7) and median (range) PVR was 50 ml (0 – 1100). Twenty-nine (22.3%) men had the urodynamic diagnosis of BOO. The diagnostic performance of the algorithm and other uroflow criteria are presented in Table 1.</p>				
TABLE 1				
	Algorithm	-2SD Siroky	Q _{max} <15 ml/s	Q _{max} <10 ml/s
Sensitivity (%)	93.1	86.2	96.6	75.9
Specificity (%)	31.7	33.7	10.9	41.6
Negative predictive value (%)	94.1	89.5	91.7	85.7
Men classified as "No obstruction" (%)	26.2 [34/130]	29.2 [38/130]	9.2 [12/130]	37.7 [49/130]

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In other words, about 1/4 of men were classified as "No obstruction" by the algorithm. Amongst this subset, only 2 out of 34 (5.9%) men actually had the urodynamic diagnosis of BOO, and were therefore classified incorrectly. The screening algorithm with both the algorithm diagnoses (in quotations) and urodynamic diagnoses (in italics) is illustrated in Figure 1.

FIGURE 1.



Conclusions: In our population of older men with LUTS, the screening algorithm achieved similar levels of sensitivity and specificity for BOO as in the original study by DuBeau and colleagues. It also performed better than selected uroflow criteria alone in the task of excluding BOO. In a population with a relatively low prevalence (and therefore, pre-test odds) of BOO such as ours, this algorithm was able to identify a subset (about 1/4) who could potentially avoid invasive pressure-flow studies to exclude BOO, while maintaining a low risk (6%) of missing BOO.

References.

- 1 DuBeau CE, Yalla SV, Resnick NM. Improving the utility of urine flow rate to exclude outlet obstruction in men with voiding symptoms. *J Am Geriatr Soc* 1998; 46:1118-1124.
- 2 Griffiths D, Hofner K, van Mastrigt, et al. Standardization of terminology of lower urinary tract function: pressure flow studies of voiding, urethral resistance, and urethral obstruction. *Neurourol Urodyn* 1997; 16:1-18.