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PATIENT ACCEPTABILITY OF A NON-INVASIVE BLADDER PRESSURE MEASUREMENT TECHNIQUE

Aims of Study

Preoperative pressure-flow studies assist in the appropiate selection for surgery of men with lower urinary tract symptoms presumed to be secondary to benign prostatic hypertrophy (1). However conventional pressure-flow studies are an invasive and uncomfortable procedure for patients. We have developed a non-invasive pressure test (cuff test) to address these problems. An automated pneumatic pressure control device inflates an adapted paediatric sphygmomanometer cuff around the shaft of the penis until urinary flow is stopped. The cuff is then rapidly deflated. We have previously shown that cuff pressure on cessation of flow reflects the isovolumetric intravesical pressure (2). In this study we assessed the patient acceptability of the cuff test with a questionnaire combining visual analogue scales (VAS) with a multiple choice question (MCQ).

Methods

79 males with lower urinary tract symptoms performed the cuff test in combination with invasive pressure-flow studies.Conventional pressure-flow studies required the insertion of 11ml Lignocaine per urethera 5 minutes prior to the insertion of a fluid filled, double lumen 6F catheter. Following the investigations the patients were asked to complete a questionnaire. Clear verbal and written instructions were provided with examples of completed questions. The questionnaire consisted of one multiple-choice question and three further questions using a visual analogue scale. The multiple-choice question (MCQ) asked for a preference between cuff test, conventional cystometry (CMG) or no preference for either. The next two VAS asked for an indication of any discomfort during each pressure study technique which, for assessment, was ranked from 0 –100. (Fig.1)

Fig 1.

"trouble free" ---------- "very unpleasant".
(0) (100)

The final VAS asked the patients to repeat their preference: CMG, cuff test or no preference. For analysis, the VAS response of patients was allocated to one of three same groups identified in the MCQ. The patients were encouraged to request help if uncertain about the nature of a question. Any additional comments from the patients regarding the test were also documented.

Results

100% of patients approached agreed to complete the questionnaire (n=79).
The results of patient preference analysis are given in Table 1. The 47 patients who indicated a preference for the cuff test on MCQ confirmed this choice on the VAS. A further 19 patients who answered no preference on MCQ indicated a preference for the cuff test when the question was repeated by the VAS. Overall, 85% (n=67) patients expressed a preference for the cuff test on at least one of the two times the question was asked. 11% (9) expressed no preference and 4% (3) preferred CMG. No patient contradicted himself by indicating a preference for the cuff test on VAS or MCQ and then reverting to CMG on another question.

Table 1

Preference	**Numbers**	**%**
Cuff on MCQ & VAS	47	60
Cuff on VAS only	20	25
Cuff on MCQ only	0	0
No preference	9	11
CMG on MCQ only	1	1
CMG on VAS only	0	0
CMG on MCQ & VAS	2	3
Total	**79**	**100**

From visual analogue scales discomfort of cuff inflation scored a mean of 21(Range 0 –87) SD ± 22. Discomfort from line insertion scored a mean of 34 (Range 1-93) SD ± 25.
Patients had significantly less discomfort with the cuff test, (paired t test $p < 0.001$)

Conclusions

A strong preference for the cuff test in place of conventional pressure flow studies was demonstrated. The non- invasive pressure measurement performed in this study appeared to be tolerated well and to cause less patient discomfort.

(1) Conventional urodynamics and ambulatory monitoring on the definition and management of bladder outflow obstruction. (1996) J Urol 155: 506-511.
(2) Non-invasive measurement of bladder pressure by controlled inflation of a penile cuff: a comparison with simultaneous measurements in patients and volunteers. 2000. Journal of Urology. 167:1344-47