

IS THE ONE-HOUR PAD-TEST USEFUL IN THE ASSESSMENT OF URINARY STRESS INCONTINENCE?

Hypothesis / aims of study

This prospective study assessed the link between results of the one-hour pad-test and pad weight in light of some variables associated with female urinary incontinence.

Study design, materials and methods

155 patients in our department awaiting uro-gynaecological surgery were recruited consecutively to this study. All patients underwent the one-hour pad-test according to ICS criteria and the following pre-operative work-up: history, clinical uro-gynaecological examination with classification of urogenital prolapse according to the Half-Way System, stress test at full bladder, urodynamics including free flowmetry with determination of post-micturitional residue, filling cystomanometry, pressure/flow study, VLPP, urethral pressure profile, and pelvic statics ultrasound scan. All patients completed two questionnaires: the urogenital distress inventory (UDI) and the IIQ (incontinence impact quality of life). Patients also answered 3 specific questions: 1) Do you leak urine? (no, sometimes, often); 2) How much urine do you leak? (some drops, a jet, continuous leak); 3) When do you leak? (only with strong effort, with little effort, without any effort).

The following variables were investigated: age, BMI (Body Mass Index), urgency and voiding symptoms, grade of urethrocele and cystocele, type and grade of incontinence as described by the patient (using the Ingelman Sundberg Classification), number of pads used daily, scores in the UDI, IIQ questionnaires and in the 3 question answers. Urodynamics variables included detrusor overactivity, urine leakage, VLPP (assessed at 200 cc bladder filling in the gynaecological position), maximum cystomanometric capacity and the maximum urethral closure pressure (MUCP). All variables were analysed in terms of the pad-test result. The one-hour pad-test was considered positive with a weight equal to or bigger than 1 gr.

Statistical analysis was based on non-parametric tests because many data were asymmetric and many variables were measured on a numerical scale. Groups were compared using the Kruskal-Wallis test with Bonferroni's adjustment for multiple comparisons in cases of different types of incontinence and the Mann-Whitney test for all the others. Spearman's correlation coefficient was used to establish correlations.

Results

119/132 (90%) incontinent patients had a positive pad-test. 14/23 (60.9%) continent patients had a negative pad-test.

Pad-test positivity had a positive association with severity of incontinence as referred by the patient, with a positive VLPP (OR 5.4; CI 95%: 2.2-13.3) and with urine leakage at urodynamics (OR 5.4; CI 95%: 2.3-12.7); with stress test positivity (OR 6.3; CI 95%: 2.8-14.3) as 83/94 (88.4%) patients with a positive stress test also had a positive pad-test. The test has a negative association with voiding symptoms (OR: 0.4). Pad weight increased in the presence of every first four variables.

Significant direct correlation emerged between the pad-test result expressed as pad weight and the number of pads used daily ($r=0.491$, $p<0.0001$), the IIQ score ($r=0.251$, $p<0.05$), UDI score ($r=0.05$, $p<0.0001$); the answers to the first question ($r=0.461$, $p<0.0001$) and to the second one ($r=0.448$, $p<0.0001$). Pad test positivity or negativity and pad weight did not correlate with detrusor overactivity, urgency symptoms, maximum cystomanometric capacity, MUPC, type of incontinence, age, BMI, grade of urethrocele or cystocele or the answers to the third question.

The sensibility of one-hour pad-test is 90%, the specificity is 61%, the predictive positive value is 92.9% and the predictive negative value is 51.8%.

Interpretation of results

Patients with a positive VLPP or urine leakage at urodynamics have a 5.4 greater probability of having a positive pad-test while patients with a positive stress test at the clinical examination have a 6.3 probability of having a positive pad-test. On the other hand patients

with voiding symptoms have a 0.4 probability of suffering from incontinence: the voiding dysfunction has a protective role as regards to the urinary incontinence. Patients with higher scores in the UDI and IIQ questionnaires and in their answers to the first two specific questions on incontinence have heavier pads at the end of the test. Detrusor overactivity, maximum cystomanometric capacity, MUCP, urgency symptoms, type of incontinence, age, BMI or grade of urethrocele or cystocele and the answer to the third question are not predictors of pad-test results.

Concluding message

The one-hour pad-test is significantly associated with the most characteristic variables related to urinary incontinence. It represents the severity of incontinence, but it has a low specificity that reduces its clinical value.

References:

- 1) "The standard 1-hour pad test: does it have any value in clinical practice?"; EurUrol 2004 (46): 377-80;
- 2) "Objective assessment of urinary incontinence in women: comparison of the one-hour and 24-hour pad tests."; Eur Urol 2004 (45): 208-12.