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THE SEVEN-DAY PAD TEST (7DPT) IS A FEASIBLE AND RELIABLE TOOL FOR MEASURING URINARY INCONTINENCE AFTER RADICAL PROSTATECTOMY: RESULTS FROM A PILOT STUDY

Hypothesis / aims of study
Pad test is an objective tool to measure the amount of urinary loss, assessing severity of urinary incontinence (UI) after radical prostatectomy (RP). The most commonly used methods are 1-hour pad test and 24-hour pad test. In both, nursing intervention is required for weighing pads, and patients need to transport them to the clinic. We explore a new method of pad-test in which patient weighs for seven days their 24-hour pads at home (Seven-Day Pad Test, 7DPT). Feasibility and reliability of 7DPT are evaluated.

Study design, materials and methods
We performed a pilot, unicenter, prospective and diagnostic study of consecutive incontinent male patients after radical prostatectomy followed at a tertiary care hospital, from January 2015 to January 2016. Patients were asked if they had a scale at home, and if not, they bought it. In an information form sheet, they scored the number of pads used in 24 hour, the weight of 24-hour pads, and the weight of the same number of dry pads, for 7 consecutive days. Patients were advised to perform normal daily activity. Two 7DPT were done with a week interval between them. At the second visit the sheet was returned and patients were asked about the difficulty of completing the 7DPT, and ICIQ-SF was done. Feasibility was evaluated measuring the number of patients who complete the 7DPT, number of days completed, items lost and difficulties found. Bland-Altman plot was done to evaluate agreement of mean 7DPT with 24h PT randomly chosen from the 7DPT, and Intraclass Correlation Coefficient (ICC) calculated for test-retest reliability. Correlations with number of pads and mean seven-day pad weight, and ICIQ-SF (for convergent validity) were done using Rho Spearman's and Pearson's correlations. ANOVA with Tukey test for post-hoc comparisons for group comparisons of ICIQ-SF severity.

Results
A total of 32 men were recruited, with a mean age of 69,8 years (range 56 to 79). Every single patient fulfilled the 7DPT (100%), and all the 7 days were completed, except for one patient (day 7 was the day of the visit); four patients didn't score the number of pads. None of the patients found any difficulties completing 7DPT, most of them considering it easy, or very easy. The need of using a scale at home was not an inconvenient for none of them. Median weight of 7DPT was 151 g (IC 95% 192 to 508). The mean number of pads used was 2,7 (range 1 to 6). The mean ICIQ-SF score was 15,2 (range 4 to 21).
Bland Altman plot showed good agreement between mean 7DPT and a randomly selected 24hPT (from the 7d), with no bias found in the lineal regression model (r=0.19, p=0.29). (Figure 1). Test-retest reliability was excellent, with ICC 0.99 (CI 95% 0.99-1.00). Number of pads used and mean 7DPT were positively correlated (Spearman's rho 0,778, p=0.0001), figure 2 shows linear regression. Convergent validity with ICIQ-SF score was measured, with a Pearson's r = 0.517 (p=0.024). No significant differences were found in the mean 7DPT between moderate and severe ICIQ-SF scoring groups (103 ± 24 gr vs 163 ± 123 gr), but very severe group showed a significant higher mean 7DPT (841 ± 746 gr) compared with the other two groups. Only one patient was in the slight group (ICIQ-SF 4 points), with a 7DPT of 1 gr.

Interpretation of results
7DPT was feasible and easy to perform by patients with UI after RP. All patients completed the test, and none of them rejected it for logistical reasons. Some items were missed (days and number of pads) but the proportion was very low. Bland Altman plot showed a good internal agreement between mean 7DPT and one single day PT randomly selected from the 7DPT.
There is no standardized method of measuring amount of incontinence after RP. The problem of   1-hour pad test and 24-hour pad test is that nursing intervention is required for weighing pads when patient return to the visit, and bringing pads in good conditions may be a problem (bad closed bags, oversights, etc.). In the other hand, some studies have shown low reliability of 24h PT and low correlation with severity of UI [1,2]. But in this study, 7DPT has shown good internal agreement, with low variability between different measurement days, and optimal test-retest reliability. With this new method, patient performs the pad test at home, doing his normal daily activity, in an easy and comfortable way.
More insight is needed about this tool. After this pilot study we are developing a second stage, comparing 7DPT with 24hPT, and measuring the ability of 7DPT to detect changes after surgery. Convergent validity with other severity measures (as ICIQ-SF or other UI quetionaires) should be best assessed [3].

Concluding message
We considered 7DPT a feasible and reliable tool for measuring the amount of urinary loss in male patients after RP, and moreover, it may be a comfortable and easy method for patients and doctors.
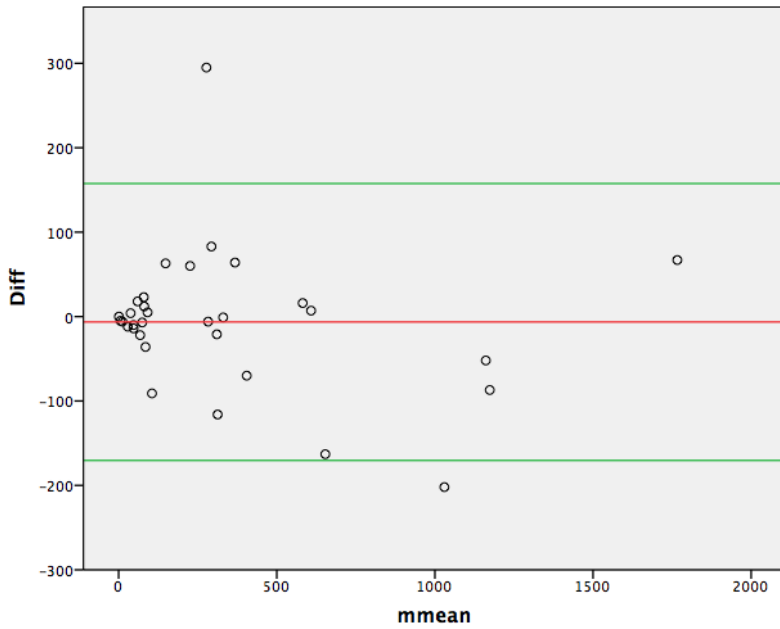
Figure 1: Bland Altman Plot for mean 7DPT and 24hPT randomly selected
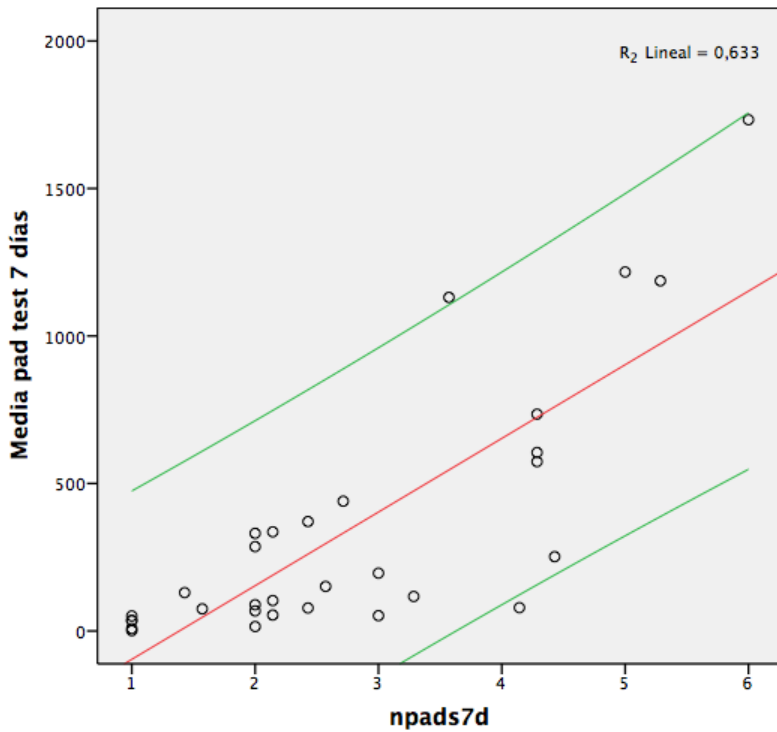

Figure 2. Linear regression between number of pads and mean weight on 7DPT

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