Results: There were a total of 40 IUVs amongst the 17 men as 6 patients performed 3 uroflows before agreeing to UDS. The average volume voided on uroflow was 69.1 ± 26.7 ml (range 17 – 119 ml) while the mean Qmax was 6.1 ± 1.7 ml/s (range 3.5 – 9.3 ml/s). From UDS, the mean Qmax obtained was 6.8 ± 2.2 ml/s (range 3.8 – 10.5 ml/s) and this was statistically non-significant when compared to the Qmax produced at either the 1st or 2nd uroflow (p=0.492 & p=0.813 respectively). However, the mean voided volume at UDS was 221.8 ± 88.8 ml (range 68 – 442 ml) and this was statistically highly significant (p=0.0001). The mean residual urine volume was 51.8 ± 41.1 ml (range 0 – 126 ml). Seven men assessed as having *only* DI pre-UDS were found to also have BOO post-UDS while 8/10 men with the clinical diagnosis of BOO were confirmed to be so at UDS; the remaining 2 were found to actually have underactive detrusor. UDS showed that out of the 15 men who had BOO, 10 (67%) had *both* DI & BOO.

Conclusions: Low voided volume on uroflow is still a situational problem despite adequate instructions. Making clinical decisions based on such IUV is not advised, and at best, has a 72% likelihood of a patient having BOO [4]. The issue of men who *persistently* produce IUV remains to be addressed and this study attempts to show the usefulness of UDS in overcoming this problem. We suspect that co-existent detrusor instability is a plausible explanation as to why such men are unable to hold their bladders as this was found in 67% of those who had BOO.

Results

Nine women were found to be continent at both pad tests and were excluded from the study. Fifty-six women (Mean age = 57, 95%CI 47-63) were proven to be incontinent (Pad test loss ≥2g) on one of the pad tests.

Despite our best attempts to achieve identical bladder volumes on the two tests, there were 13 women (23%) who were **continent** on the first pad test but **incontinent** on the second test. The median value for the first pad test loss of 4g (IQR 0.5-15) was significantly lower than that of the second test, 16g (IQR 4-31.5), Wilcoxon's signed ranks test p=0.017. Despite repeated careful scanning during the second test however, the second pad test total bladder volumes (541mls, IQR 377-603), were considerably greater than the first test bladder volume (433, IQR 331-568), Wilcoxon's signed ranks test p >0.001.

In twenty-six women, the total total bladder volumes were actually within 15% of each other (median volume 475mls *vs* 473mls). In these women, the second pad test loss was still significantly higher than first pad test (14g *vs* 4g, Wilcoxon's signed ranks test p = 0.037). The test-retest repeatability of the pad test (with similar bladder volumes) was quite poor (mean 10g difference, limits of agreement +46g to -66g), and the test does not conform to the British Standards Institution definition of adequate repeatability.

Questionnaires about pad testing were returned by 77% of women. Of these, 33% admitted that they tried very hard not to leak during the first pad test, and 21% tried not to leak during the second pad test. 84% of the women said that they felt more comfortable about the test in general and were less frightened of leaking at the second visit.

Conclusions

The widely used one hour pad test has poor repeatability. The bladder volume at the time of the test is important and should be quoted in research papers. A third of the women in this study, despite a full explanation of what the test involved and why it was being performed, still tried very hard not to leak during the test. However on repeating the test, the women were more confident and more likely to leak. We also feel that larger bladder volume in the second test was probably due to increased diuresis, as the women arrived for the second test better hydrated. The test-retest repeatability of the pad test at similar bladder volumes was still quite poor (limits of agreement +46g to -66g).

We conclude that the test-retest reliability of the one-hour pad test, even when constant bladder volumes are obtained, is inadequate. Therefore, although this test is a useful objective measure for baseline severity of incontinence, it should not be relied upon as an accurate post-treatment outcome measure.

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THE REPEATABILITY OF THE STANDARD ONE HOUR PAD TEST USING SIMILAR ' NATURAL FILL' BLADDER VOLUMES

Introduction

The one hour pad test is recommended by the Standardisation Subcommittee of the ICS as an objective measure of severity of urinary incontinence. In the present era of evidence-based medicine, however, we need a measure of leakage severity that has sufficient test-retest reliability to be employed as a robust outcome measure. That is, the difference between the first test (T1) and the second test (T2) should lie within 2 standard deviations of the total mean difference between T1 vs T2, in 95% of cases[1]. Previous authors have investigated the

reproducability of the test, and the effect of different bladder volumes [via retrograde catheter or natural/diuresis fill] on the amount of Pad test loss but numbers were small (n=19)[2], (N=18)[3], and simple correlation coefficients were used, rather than more discriminating methods[4]. The 1998 Standardization Committee[5] report recommends that the bladder volume at pad testing should be kept constant, but whether this practice does improve the test-retest reliability has not been assessed under natural (diuresis-fill) conditions.

We wished to assess the repeatability of the pad test result, using the 'natural fill' method to produce bladder volumes >200mls. We questioned the practicality of such a goal. We also investigated patients "willingness to leak" at the two tests, because test-retest reliability might be affected by patient's attitudes.

Patients and Methods

A standard one hour pad test was performed (N=65). Patients were asked to attend with a comfortably full bladder, then drank 500ml. A natural-fill bladder volume of >200mls was confirmed on a Bard bladder scanner prior to the test. After provocative exercises, pad loss was weighed, urine volume was measured by Dantec Uroflowmeter. Residual volume was checked by Bladderscan. Total bladder volume comprised urine loss on the pad, urine volume voided and the ultrasound residual.

Prior to treatment, the women underwent a second pad test (3 to 10 days later). The natural-fill bladder volume was repeatedly checked by Bladderscan until a similar (+/-15%) volume to that of their first pad test was achieved. The provocation exercises were reproduced identically. All pad tests were performed by the same specialist research nurse.

Following the second test, the women were sent a questionnaire about their feelings and attitudes towards the two tests, to be returned anonymously.

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HOW DOES THE TVT PRODUCE CONTINENCE? A COMPARISON OF BLADDER NECK ELEVATION AND MOBILITY AFTER TVT AND COLPOSUSPENSION

Aims of Study.

Tension-free Vaginal Tape (TVT) is a new surgical procedure for genuine stress incontinence (GSI) that theoretically acts by supporting the pubo-urethral ligaments at their mid-urethral insertion, without fixation and without elevation of the urethra/bladder neck complex (1). This theory implies the TVT procedure should not elevate the bladder neck, change it's angle in relation to the symphysis or reduce it's movement on increased intra-abdominal pressure. Whilst it has been shown that colposuspension significantly elevates the bladder neck and reduces its movement,(2) the action of TVT has yet to be assessed.

Transperineal ultrasound is a reproducible and technically simple means of describing bladder neck position and movement (2). This study aims to compare bladder neck angles, bladder neck elevation and movement after TVT and colposuspension, using transperineal ultrasound.

Methods.

Sixteen women recruited from the Urogynaecology clinic were prospectively studied; 9 undergoing TVT and 7 undergoing open Burch colposuspension, without any other surgical procedure. All patients had urodynamically proven primary GSI and had not undergone any prior procedure for prolapse. Mixed incontinence, voiding difficulty (peak flow rate <15mls/sec or maximum voiding pressure >50cm water) or significant prolapse were excluded.

Transperineal ultrasound was performed pre-operatively and 3-4 weeks after surgery according to Creighton et al (2), using a Siemens Sonoline SL-1 machine with a 3.5MHz linear array probe with the patient in the sitting position and a bladder volume of 250ml. Three images at rest and three at maximum valsalva were taken. All patients were sufficiently comfortable at the post-operative visit to perform the test adequately.
X and Y co-ordinates were plotted on a grid with the (0,0) co-ordinate at the anterior inferior border of the symphysis and the Y-axis parallel to the inferior border of the symphysis. From each set of resting and valsalva images, average bladder neck co-ordinates and angles in relation to the symphysis were calculated. Linear bladder neck excursion on valsalva and post-operative elevation toward the symphysis were calculated using mathematical formulae described by Creighton et al (2).

Results were analyzed by nonparametric statistical methods; the Mann-Whitney-U-Wilcoxon Rank Sum W test for analyses between TVT and colposuspension groups and the Wilcoxon Matched Pairs test for analysis between pre-operative and post-operative values. Statistical significance was regarded as a P value < 0.05.

Results.

The average age at surgery was 50 years (SD 10.2), and weight 74.7Kg (SD 22.2); with no difference between groups; P=0.76, and 0.46 respectively. All 7 in the colposuspension group and 8 of the 9 in the TVT group were symptomatically cured of their stress