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# THE "BOTHER" OF URINARY INCONTINENCE

Hypothesis / aims of study

Patient reported measures are increasingly used to assess urogynecological symptoms and monitor therapies. Questionnaires play an important role in clinical research, but are rarely used in routine clinical settings because of the administrative workload involved. Physician administered Visual Analogue scales (VAS) may be a practicable alternative to assess bother related to urogynecologic disorders (1). There is little data however on how VAS bother scales correlate with symptoms and objective clinical findings. We undertook this study to explore the relationship between VAS bother scores for stress urinary incontinence (SUI) and urge urinary incontinence (UUI), and demographic factors, symptoms and clinical findings.

Study design, materials and methods

All patients attending a tertiary urogynecological unit for investigation of lower urinary tract or pelvic floor disorders between January 2012 and January 2013 were included in this study. In addition to a standardised interview included evaluation of symptoms and obstetric and gynaecological history, we used visual analogue scales (VAS) to assess the bother of SUI and UUI on a continuous scale, with 0 referring to "no bother at all" and 100 referring to "worst conceivable bother".

All patients underwent multi-channel urodynamic testing to assess bladder sensation and capacity, detrusor overactivity, urodynamic stress incontinence, abdominal leak point pressure (ALPP) and maximum urethral pressure (MUP). 4D translabial ultrasound, supine and after voiding, was used to record valsalva cine loops, which were analysed at a later date by the first author, blinded to all clinical data. Urethral rotation, retrovesical angle and funneling were measured as previously described (2). A cystourethrocele was defined by the combined finding of proximal urethral rotation of ≥ 45 degrees and an open retrovesical angle (≥ 140 degrees). Patients with prior incontinence and/or prolapse surgery (n=118) were excluded from the evaluation of imaging data. Statistical analysis was carried out with SAS v 9.3. Linear regression and multiple regression were performed. A p value <0.05 was considered statistically significant.

Results

During the inclusion period 505 patients were seen. 74% (n=375) reported symptoms of SUI, with a mean bother of 5.6, and 74% (n=371) symptoms of UUI, with a mean bother of 6.4. In women reporting no symptoms the bother was assumed to be 0. Sixty percent of women (n=303) reported symptoms of both SUI and UUI, and 12% (n=62) no urinary incontinence. VAS bother scores yielded an intraclass correlation coefficient (ICC, single measures, absolute agreement defintion) of 0.96 (CI 0.92-0.98) for SUI and 0.92 (CI 0.85-0.96) for UUI when retested approximately one hour after the first assessment (n=40), indicating excellent repeatability. Table 1 shows descriptive statistics including urodynamic and sonographic findings, and associations with bother VAS data.

| | | | Bother of SUI (VAS 0-100) | | Bother of UUI (VAS 0-100) | |
|---|---|---|---|---|---|---|
| | | | ß (95% CI) | p-value | ß (95% CI) | p-value |
| Age | 56 | 14 | -0.4 (-0.6, -0.2) | 0.0007 | 0.4 (0.1, 0.6) | 0.001 |
| Body Mass Index | 29.0 | 6.2 | 0.7 (0.2, 1.2) | 0.006 | 1.1 (0.6, 1.7) | <0.0001 |
| Menopausal status | 312/504 | 62% | -9.6 (-15.8, -3.3) | 0.0003 | 11.3 (4.7, 17.9) | 0.0008 |
| Parity | 2.6 | 1.4 | 1.5 (-0.7, 3.8) | 0.17 | 3.5 (1.2, 5.9) | 0.003 |
| Prev. incontinence / prolapse surgery | 118/505 | 23% | -9.5 (-17.2, -2.4) | 0.01 | 10.3 (2.7, 17.9) | 0.008 |
| Previous hysterectomy | 146/505 | 29% | 1.4 (-5.3, 8.2) | 0.7 | 10.1 (3.0, 17.2) | 0.005 |

Table 1: Bother and demographic variables: Data is given as mean (SD) or number (percent). Linear regression, ß gives the mean (95% CI) increase in VAS bother (in mm), for every one unit increase of explanatory variable

On univariate analysis bother of SUI was negatively associated with symptoms of prolapse and voiding dysfunction, and positively related to the diagnosis of USI, a low ALPP and the ultrasound findings of cystourethrocele and funnelling. Bother of UUI was positively associated with the symptoms of Nocturia and Frequency and the findings of Detrusor Overactivity, but also USI, a low MUP and/ or ALPP. These associations remained highly significant on multivariate analysis, controlling for age, BMI, parity, previous incontinence/prolapse surgery and previous hysterectomy.

| | | | Bother of SUI (VAS 0-100) | | Bother of UUI (VAS 0-100) | |
|---|---|---|---|---|---|---|
| | | | ß (95% CI) | p-value | ß (95% CI) | p-value |
| Bother of SUI | 4.2 | 3.5 | | | 3.9 (3.0, 4.7) | <0.0001 |
| Prolapse symptoms | 257/505 | 51% | -9.4 (-15.5, -3.4) | 0.002 | -1.1 (-7.5, 5.4) | 0.75 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Nocturia | 249/503 | 50% | -0.5 (-6.6, 5.6) | 0.88 | 18.5 (12.2, 24.7) | <0.0001 |
| Frequency | 179/503 | 36% | -0.9 (-7.3, 5.5) | 0.77 | 10.8 (4.1, 17.5) | 0.002 |
| Voiding Dysfunction | 180/504 | 36% | -11.9 (-18.2, -5.6) | 0.0002 | -4.0 (-10.7, 2.8) | 0.25 |

Table 2: Bother and symptoms (n=505).

| | | | Bother of SUI (VAS 0-100) | | Bother of UUI (VAS 0-100) | |
|---|---|---|---|---|---|---|
| | | | ß (95% CI) | p-value | ß (95% CI) | p-value |
| USI | 341/492 | 69% | 24.7 (18.4, 31.0) | <0.0001 | 11.0 (4.0,18.0) | 0.002 |
| MUP (cm H2O) | 42.7 | 20.4 | -1.0 (-0.2, 0.1) | 0.5 | -0.2 (-0.4,-0.1) | 0.002 |
| Low ALPP (<50 cm H$_2$O) | 61/492 | 12% | 14.7 (5.5, 24.0) | 0.002 | 18.7 (8.9,28.4) | 0.0002 |
| Detrusor Overactivity | 148/492 | 30% | -0.1 (-6.8, 6.6) | 0.9 | 25.5 (18.7,32.2) | <0.0001 |
| Maximal bladder capacity (ml) | 446 | 93 | 0.03 (-0.01,0.08) | 0.13 | -0.4 (-0.09, 0.01) | 0.07 |
| Cystourethrocele Green II* | 173/369 | 47% | 16.4 (9.4, 23.4) | <0.001 | 0.03 (-7.54,7.59) | 0.99 |
| Funneling* | 155/369 | 42% | 7.6 (0.4, 14.9) | 0.04 | -1.6 (-9.3, 6.1) | 0.68 |

Table 3: Bother and findings on urodynamics and imaging examination (n= 505).*n= 387 for imaging data due to the exclusion of 118 women with prior incontinence or prolapse surgery

Interpretation of results
VAS bother scores for USI and UUI were highly repeatable and strongly associated with symptoms and signs of lower urinary tract and pelvic floor dysfunction. These associations remained highly significant after controlling for demographic variables.

Concluding message
Physician administered VAS bother scores are a practicable, reliable and valid tool to assess symptoms of urinary incontinence.

References
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2. Dietz HP, Nazemian K, Shek KL, Martin A. Can urodynamic stress incontinence be diagnosed by ultrasound? Int Urogynecol J. 2013

Disclosures