**1174**

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# PROGNOSTIC VALUE OF URETHRAL MOBILITY AND VALSALVA LEAK POINT PRESSURE FOR FEMALE TRANSOBTURATOR SLING PROCEDURE

Hypothesis / aims of study

The transobturator sling (TOT) procedure is a well-established technique for the surgical treatment of stress urinary incontinence. Nonetheless, the mechanisms through which continence is obtained, and thereafter the prognostics determinants, are incompletely understood. The prognostic significance of urethral mobility and Valsalva leak point pressure (VLPP), which is a marker of intrinsic sphincter deficiency, is still debated.[1,2] We analyzed the influence of urethral mobility and Valsalva leak point pressure on postoperative outcomes.

Study design, materials and methods

A prospective cohort was conducted including 66 patients submitted to TOT from March 2006 to May 2009. Urethral hypermobility was defined as mobility ≥30° on Q-tip test, and Valsalva leak point pressure (VLPP) was classified as grater than 60 $cmH_2O$ or 60 and less on preoperative urodynamics. Postoperative objective success was defined as absence of any urinary loss during full bladder standing Valsalva maneuver and no need of pads, while subjective success was achieved when the patients considered themselves much better or cured, the level of satisfaction was ≥ 8 (according to a visual analogic scale from 0 to 10) and there was no report of stress incontinence. Quality of life was analysed by ICIQ-SF. Statistical analysis was accomplished and the results rendered significant if $p< 0.05$.

Results

Among the 73 patients undergoing the TOT procedure, seven were excluded due to incomplete preoperative data (VLPP or urethral mobility) and 66 patients were included for analysis. Overall, 94% and 79% of our patients were cured according to objective and subjective success criteria, respectively. There were two cases of mesh extrusion to the vaginal wall and one case of erosion to the bladder neck. None of them presented local severe infection and were submitted to the correcting surgery electively. They were all healthy and continent on completion of follow-up.

Baseline characteristics (age, BMI, gestational status, preoperative ICIQ, type of continence and previous incontinence surgery) had similar distribution when different groups were compared. These possible prognostic factors were individually analysed and had no influence on postoperative outcomes. Mean preoperative ICIQ was 15.5 and 16.7 in patients with low and high mobility ($p= 0.2$ – Mann-Whitney's test), respectively.

Urethral hypermobility was an important determinant of objective success ($p= 0.04$), as just one patient with mobility ≥30° failed therapy. Subjective success rate was also higher in this group, but the difference did not reach statistical significance ($p= 0.07$). Conversely, VLPP had no role as prognostic factor, either when analysed as categorical variable or when numeric VLPP values were compared. In the objective success analysis, mean VLPP was 77 $cmH_20$ and 95 $cmH_20$ in successful and unsuccessful cases, respectively ($p= 0.21$ – Mann-Whitney's test). In the subjective success analysis, patients who failed therapy had mean VLPP similar to those who succeed (79.3 $cmH_20$ *versus* 73.6 $cmH_20$, respectively) ($p= 0.31$ – Mann-Whitney's test).

There was no statistical difference between mean postoperative ICIQ score when there was high and low urethral mobility (mean 3.7 and 2.8, respectively) ($p= 0.16$).

In the subgroup analysis, patients with concomitant low mobility and high VLPP had worse objective success rates when compared to those with hypermobility and low VLPP (table I). The former also presented lower rates of objective ($p= 0.01$) and subjective ($p= 0.04$) success in relation to the remaining of the study population.

**Table I.** Comparison between specific subgroups.

| **Subgroups** | **Objective success** – n(%) | | **p*** | **Subjective success** – n(%) | | **p*** |
|---|---|---|---|---|---|---|
| | Yes | No | | Yes | No | |
| Mobility < 30º and VLPP>60 $cmH_20$ | 8 (72.7) | 3 (27.3) | 0.04 | 6 (54.5) | 5 (45.5) | 0.28 |
| Mobility ≥30º and VLPP≤ 60 $cmH_20$ | 18 (100) | 0 (0) | | 13 (72.2) | 5 (27.8) | |
| TOTAL | 26 (89.7) | 3 (10.3) | | 19 (65.5) | 10 (34.5) | |

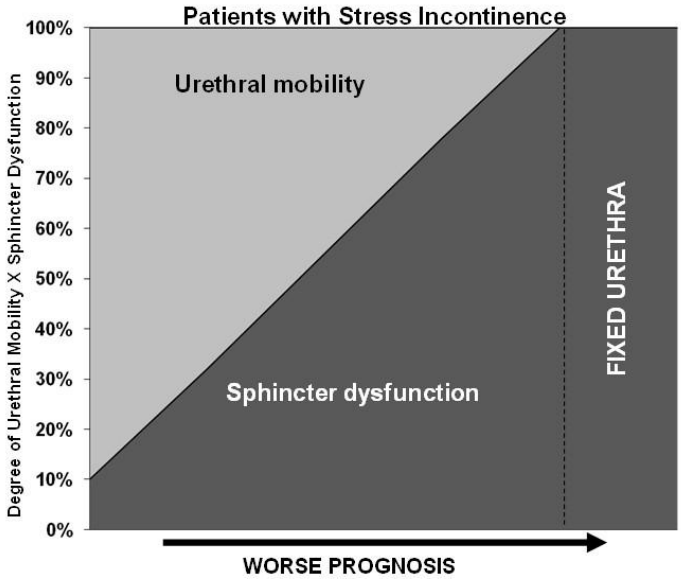
Interpretation of results

To more adequately analyze the interaction between urethral mobility and sphincter intrinsic dysfunction (indicated by VLPP≤60 $cmH_20$), we compared subgroups and demonstrated that high urethral mobility predicts cure, even when VLPP indicates a theoretically more dysfunctional sphincter. Low mobility was a predictor of failure even in women without intrinsic sphincter deficiency (high VLPP), although cure rates remain acceptable. This type of analysis seeks to circumvent selection bias. A contemporary Turkish study had a similar conclusion [3].

Theoretically, a successful sling procedure restores continence not by increasing resting urethral pressure but by providing a support the holds the mid-urethra in place while the proximal urethra descends under stress, allowing better pressure transmission and, more importantly, a kinking of urethra during straining. When urethra doesn't move well, this kinking does not occur. That's the advocated mechanism for urethral mobility as a prognostic factor and not a cause of incontinence.

We propose a graphic to illustrate how VLPP and urethral mobility interact to determine prognosis following sling procedure (figure 1).

**Figure 1.** Prognostic interaction between urethral mobility and sphincter dysfunction in women with SUI after sling procedure. Note that some degree of sphincter dysfunction is required for incontinence to occur.




Concluding message

Urethral mobility is an important independent prognostic factor for TOT surgery. Low urethral mobility predicts higher failure rates, but it does not preclude surgery as most of these patients are cured following the procedure. No association was found between postoperative outcomes and VLPP.

References

1. Minaglia S, Urwitz-Lane R, Wong M, Ozel B. Effectiveness of transobturator tape in women with decreased urethral mobility. J Reprod Med 2009;54:15-9.
2. Costantini E, Lazzeri M, Giannantoni A, et al. Preoperative Valsalva leak point pressure may not predict outcome of mid-urethral slings. Analysis from a randomized controlled trial of retropubic versus transobturator mid-urethral slings. Int Braz J Urol 2008;34:73-81; discussion 3.
3. Haliloglu B, Karateke A, Coksuer H, Peker H, Cam C. The role of urethral hypermobility and intrinsic sphincteric deficiency on the outcome of transobturator tape procedure: a prospective study with 2-year follow-up. Int Urogynecol J Pelvic Floor Dysfunct 2009.

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| ***Specify source of funding or grant*** | **None** |
| ***Is this a clinical trial?*** | **Yes** |
| ***Is this study registered in a public clinical trials registry?*** | **Yes** |
| ***Specify Name of Public Registry, Registration Number*** | **This study was approved by Insitutional Review Board (Ethics Committee) and registered in the national (Brazilian) research database called SISNEP (www.saude.gov.br/sisnep) by the number (CAAE): 0001.0.148.000-10. This database has public access.** |
| ***Is this a Randomised Controlled Trial (RCT)?*** | **No** |
| ***What were the subjects in the study?*** | **HUMAN** |
| ***Was this study approved by an ethics committee?*** | **Yes** |
| ***Specify Name of Ethics Committee*** | **Ethics Commitee of Santa Casa de São Paulo Medical School.** |
| ***Was the Declaration of Helsinki followed?*** | **Yes** |
| ***Was informed consent obtained from the patients?*** | **Yes** |