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# PERINEAL ULTRASOUND PARAMETERS IN WOMEN WITH STRESS URINARY INCONTINENCE BEFORE AND AFTER TVT-O PROCEDURE

Hypothesis / aims of study

Pelvic floor ultrasound is an investigational procedure able to document vesico-urethral morphological and functional changes at rest and during provocation tests in the management and surgical follow-up of female stress urinary incontinence (FSUI) and pelvic organ prolapse (POP). The aim of this study is to assess these changes before and after transobturator (TVT-O) sling procedure.

Study design, materials and methods

Seventeen consecutive patients underwent TVT-O procedure for FSUI due to urethral hyper-mobility. An ultrasound examination was performed preoperatively and at 3 months after the surgical procedure. The perineal ultrasound was performed with a 3.5-MHz curved array probe with a bladder filling of 300 ml of sterile saline. During perineal ultrasound the following urethral angles and rectangular coordinate system are employed: ***x-axis*** (the central line of the pubic symphysis); ***y-axis*** (perpendicular to the x-axis at the lower border of the symphysis); ***Dx*** (distance between bladder neck and y-axis); ***Dy*** (distance between bladder neck and x-axis); ***Urethral angle (α)*** (formed by the axis perpendicular to an reference line, such the central line of the symphysis, and by the urethral axis; ***Retrovesical angle (β); Pubourethral angle (γ)*** (between the bladder neck and the inferior border of the symphysis and the central line of the symphysis). Ultrasound parameters values were recorded as median values and interquartile range (IQR). The Wilcoxon signed-ranks test was used to perform comparisons of the different parameters before and after surgery (p value ≤0.05) .

Results

The table below shows the perineal ultrasound parameters observed before TVT-O and at 3 months after surgery.

**Table. Comparison between ultrasound measures before and after TVT-O**

| Ultrasound parameter | Before TVT-O Median (IQR) | AfterTVT-O Median (IQR) | P value |
|---|---|---|---|
| ***Dx at rest*** | **9 (6.25-11,8) mm** | **10 (8.5-15.5) mm** | **NS** |
| ***Dx on Valsalva*** | **16.5 (13.25-19.5) mm** | **17 (13-17.5) mm** | **NS** |
| ***Dy at rest*** | **16 (15-18.5) mm** | **14 (12.5-21) mm** | **NS** |
| ***Dy on Valsalva*** | **4.5 (0-5.75) mm** | **5 (3-12) mm** | **NS** |
| ***α at rest*** | **15° (12°-19°)** | **18° (13.5°-23°)** | **NS** |
| ***α on Valsalva*** | **53° (37.5°-61.75°)** | **39° (25.5°- 54°)** | **NS** |
| ***β at rest*** | **145° (141°-146.5°)** | **140° (136°-148°)** | **NS** |
| ***β on Valsalva*** | **147° (136.5°-158.75°)** | **151° (147.5°-157.5°)** | **NS** |
| ***γ at rest*** | **126° (107°-130.5°)** | **132° (115.5°-144°)** | **NS** |
| ***γ on Valsalva*** | **170° (159.25°-179°)** | **155° (143.5°-176.5°)** | **0.04** |

Interpretation of results

Our data suggested that TVT-O tape would not seen to negatively affect the bladder neck and proximal urethra mobility. In contrast, the tape might slightly decrease middle urethra mobility during Valsalva manoeuvre.

Concluding message

Pelvic floor ultrasound may be considered as a simple, mini-invasive and useful tool in order to assess urethral mobility in female patients after FSUI surgery.



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| ***Specify source of funding or grant*** | **NONE** |
| ***Is this a clinical trial?*** | **No** |
| ***What were the subjects in the study?*** | **HUMAN** |
| ***Was this study approved by an ethics committee?*** | **No** |
| ***This study did not require eithics committee approval because*** | **the imaging technique is usually performed in the daily clinical practice** |
| ***Was the Declaration of Helsinki followed?*** | **Yes** |
| ***Was informed consent obtained from the patients?*** | **Yes** |