500

Natale F[1], Illiano E[2], Giannantoni A[3], La Penna C[1], Bevacqua M C[4], Carbone A[5], Pietropaolo A[3], Costantini E[3]
1. *Urogynecology San Carlo-IDI Hospital Rome Italy,* ***2.*** *Department of Neuroscience, Reproductive Sciences and Dentistry, University Federico II of Naples, Naples,Italy,* ***3.*** *Department of Medical-Surgical Specialties and Public Health, Section of Urology and Andrology, University of Perugia, Perugia, Italy,* ***4.*** *Division of Urology,Magna Graecia University of Catanzaro,Campus of Germaneto,Italy,* ***5.*** *Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome, Faculty of Pharmacy and Medicine, Urology Unit ICOT, Latina, Italy*

HAS DETRUSOR UNDERACTIVITY A ROLE ON THE OUTCOMES AFTER TRANS-OBTURATOR MID-URETHRAL SLING? A PROSPECTIVE OBSERVATIONAL STUDY

Hypothesis / aims of study
Voiding dysfunctions are one of the most challenging complications after anti-incontinence surgery. Debate on this topic is present in urogynaecological world and till now we only know from the Latthe metanalysis (1) that post-operative voiding difficulties are slightly but not significantly lower after trans-obturator mid-urethral sling. This problem is more relevant in patients with pre-op detrusor underactivity due to the risk of more frequent post-operative voiding symptoms or urinary tract obstruction.(2) Until now no study was performed on this kind of patients to support this consideration.
Primary objective of this study was to evaluate, at a long-term follow-up, if the presence of pre-op urodynamic detrusor underactivity could be the cause of voiding dysfunctions after a trans-obturator mid-urethral sling (TOT). Secondary objective was to evaluate the subjective and objective outcomes on continence and to determine the impact on Quality of Life (QoL).

Study design, materials and methods
This is a prospective, single-arm, observational study on female patients with stress urinary Incontinence (SUI) or Mixed incontinence (MUI) with predominant SUI and detrusor underactivity who underwent TOT at a high-volume urogynaecological centre between January 2010 to December 2012. UI was diagnosed using both the Cough Stress Test and the urodynamics. To assess the detrusor contraction strength we used the simple contractility index PIP [=detrusor pressure at maximum flow rate (PdetQmax) + Qmax],(2) where the range for normal detrusor contractility is from 30 to 75cmH2O. All patients provided informed consent to participate in our study. The study was approved by the ethical committee of the institution. All patients underwent surgical insertion of a trans-obturator mid-urethral sling (Monarc®). In the post-operative period all the patients underwent strict surveillance on post-void residue. Post-operative work-ups were planned at 3, 6 months, 1 year and then annually. The post-operative assessment was carried out by different medical staff operator, not involved in the surgery. The correction of SUI was evaluated objectively using the standardised Cough Stress Test (CST) and subjectively using the Patient Global Impression of Improvement (PGI-I). The King's Health questionnaire was used to evaluate Quality of Life (QoL). Urodynamics was performed, according to International Continence Society Standard and European Association of Urology guidelines, pre-operatively and at 1 year. Statistical analysis: the McNemar chi-square test, the paired t-test for continuous parametric variables, and the Fisher exact test ($p<0.05$ statistically significant) were performed.

Results
Forty-nine consecutive patients with SUI or MUI with predominant SUI and detrusor underactivity were evaluated. Mean age was 58.6 years, mean BMI 27.07, median parity 2; 34 (69.4%) patients were post-menopausal. The mean follow-up was 40 months (24-51 months). We had no intraoperative complications. Four patients (8.2%) had post-op urinary retention (post-micturition residual >100ml) lasting more than 24 hours and were treated with clean intermittent catheterization 3 times a day: 3 of these patients recovered within 48 hours, 1 within the fourth day. At the last follow-up the objective cure rate for SUI was 85.7% (42 patients) and the subjective cure rate was 81.5% (44 patients). The PGI-I data are shown in Table 1. The pre- and post-operative symptoms are reported in Table 2. We observed a statistically significant correction of SUI. Storage symptoms improved but without a statistically significance: urgency disappeared in 16 out of 26 patients and appeared "de novo" in 3 patients, while urge incontinence disappeared in 15 out of 23 patients and was observed "de novo" in 2 patients. All patients with post-operative storage symptoms underwent antimuscarinic therapy with a good response in 12 out of 15 women.We also observed a not statistically increase of voiding symptoms which however did not interfere with QoL of this group of patients. In fact the King's Health Questionnaire indicated a statistically significant improvement in QoL in all domains and this is true also for the group of patients with post-operative voiding symptoms. Thirty-five patients accepted to repeat urodymanics at one-year follow-up. Table 3 shows the pre- and post-op urodynamic data. No statistical change emerged comparing pre and post-operative data. The analysis of PIP contractility index showed that, post-operatively, detrusor undercontractility was presents in 42.9% of the sample while the remnant 57.1 had a normal contractility. It is interesting to note that the persistence of detrusor undercontractility was always associated with a value of PdetQmax < 13cmH2O pre-operatively. No obstruction, according to Blaivas and Groutz nomogram, was observed.

Interpretation of results
Our study demonstrated that TOT do not alter the voiding phase in patients with preoperative detrusor underactivity. No statistical significant difference emerged comparing pre-and post-operative urodynamic data and no obstruction according to Blaivas and Groutz nomogram emerged. Interestingly a normal contractility was observed post-operatively in the 57.1% of the sample and we could hypothesize that it may be due to the increase of the peripheral urethral resistance and consequent increase of total detrusor work. It would be interesting to study if the value of PdetQmax of 13cmH2O could be a cut-off under which the detrusor could not be able to furtherly increase its total work. Incontinence outcome confirm the efficacy of TO- midurethral slings also in this kind of problematic patient. Although present in only 8.2% of our sample, a careful observation for post-void residual in the immediate post-operative period is mandatory to avoid unrecognized urinary retention

Concluding message

Our study demonstrates that transobturator mid-urethral slings can be used also in patients with pre-op detrusor underactivity. More studies are needed to confirm our data

Table 1 – PGI-I values

Very much better	37 patients (69.8%)
Much better	7 patients (17.4%)
A little better	2 patients (6.9%)
No difference	3 patients (6.9%)
A little worse	0
Much worse	0
Very much worse	0
Total	49 patients

Table 2- Pre- and post-operatively urodynamic data

Symptoms	Pre-op #	Post-op	p
IUS 0 I degree II degree III degree	- 9 (18.4%) 28 (57.1%) 12 (24.5%)	42 (85.7%) 7 (14.3%) - -	<0.001
Urge incontinence	23 (46.9%)	10 (20.4%)	0.08
Urgency	26 (53.1%)	15 (30.6%)	0.15
Voiding symptoms	7 (14.3%)	12 (24.5%)	0.12

Table 3- Univariate logistic regression

	Pre-op	Post-op	P
Cystometric capacity	mean 362.3ml (255-453ml)	mean 357.4ml (251-454ml)	0.35
First desire of voiding	mean 142.1ml (44-255ml)	mean 143.3ml (53-279ml)	0.87
Detrusor overactivity	0 patients	0 patients	N.A.
PdetQmax	mean 12.25cmH2O (4-23cmH2O)	mean 17.4cmH2O (6-41cmH2O)	0.78
Qmax	mean 15.8 (6-3-20.6ml/sec)	mean 13.8 (6.1-28.7ml/sec)	0.68
PIP contractily index	mean 25.96 (19.5-29.9)	mean 33.13 (19-48.7)	0.55

References

1. Latthe, P.M., et al., Two routes of transobturator tape procedures in stress urinary incontinence: a meta-analysis with direct and indirect comparison of randomized trials. BJU Int, 2010. 106(1): 68-76
2. Griffiths D. Detrusor contractility: order out of chaos. Scand J Urol Nephrol 2004; 215: 93-100

Disclosures

Funding: None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Comitato Etico Aziende Sanitarie Umbria **Helsinki:** Yes **Informed Consent:** No