

VALUE OF MAXIMUM URETHRAL CLOSURE PRESSURE IN PREDICTING THE OUTCOME OF TVT AND TOT

Hypothesis / aims of study

In the treatment of stress urinary incontinence (SUI) the Tension-free Vaginal Tape procedure (TVT) is the so widely used to be considered a gold standard technique because of its reported excellent cure rate. However because of need to approach with a retropubic, blind passage of the metal needles, bladder perforations, major vascular injury and bowel perforations with rare deaths have been reported. Consequently the TransObturator Tape procedure (TOT) was developed 5 years after the introduction of the TVT. In TOT, bladder perforations were few and the other lethal complications have not been reported.

Besides the increased safety, the short term results of TOT for the treatment of SUI have been reported to be similar to that of TVT when it was first introduced. Most recently however better results were obtained in patients in patients with intrinsic urethral sphincter deficiency (ISD) using TVT in comparison to TOT⁽¹⁾⁽²⁾. It is considered here that this difference may be due to the inherent weakness of the support of the urethra after TOT given that voiding dysfunction after TOT is less than TVT. To resolve this discrepancy we compared the short term results of TVT and TOT using the preoperative maximum urethral closure pressure (MUCP) as a criterion. Thus we endeavoured to predict whether SUI patients who are not cured by TVT are cured after TOT.

Study design, materials and methods

A total 278 patient were considered, 165 of reporting SUI who underwent TVT between August 2000 and November 2004 and 113 with SUI who underwent TOT with MonarcTM (American Medical System) between October 2006 and December 2008. All surgeries were performed by a single surgeon. The number of patients in each procedure is not same in this study because we observed differences in the results between TVT and TOT in the SUI patients whose urethral resistance are low. The inclusion criteria for mixed urinary incontinence patients included absence of detrusor overactivity and evidence, based on an urodynamic study (UDS), of predominant SUI symptoms. The items that were evaluated included UDS before the operation, a coughing test, the 60-minute pad test, uroflowmetry, post void residual and a quality of life (QOL) survey before the operation and at 3 months after the operation. Resting urethral pressure profilometry (UPP) were performed with subjects in the spine position using a 7 French double lumen catheter with the urethral measuring system perfused using a flow restrictor at 8.0 ml/min and the catheter was withdrawn at 2.5 mm/sec with an electronic puller. For our QOL survey, we used the Incontinence Impact Questionnaire Short Form (IIQ-7), and the Urogenital Distress Inventory Short Form (UDI-6). The operation was considered to be "cure" if the postoperative testing revealed a result of less than 2.0 g urine loss on the 60-minute pad test and an improvement by at least 90% in all items on the QOL questionnaire; the results were labelled as "improvement" when postoperative testing revealed a result of between 2.0 g and 5.0 g on the 60-minute pad test and an improvement in the scores by at least 75% for all items on the QOL questionnaire. The results were labelled as "failure" when postoperative testing revealed a result of 5.0 g or more urine loss on the 60-minute pad test even in the presence of improvement of the scores for the items on the QOL questionnaire, or when an improvement in scores under 75% for the items on the QOL questionnaire were noted despite a result on the 60-minute pad test of less than 5.0 g.

Results

The mean age of patients who underwent TVT was 58.1 ±10.0 and that of TOT was 60.0 ±9.8 years. The mean age of patients who underwent TVT was significantly younger than that of TOT (p<0.05). The mean body mass index of TVT and TOT was 24.3±3.6 and 24.1±3.2, respectively. There was no significant difference. The mean 60-minute pad test results before TVT and TOT were 32.5±42.1g and 23.3±28.0g respectively. Urine loss was severe in the patients who underwent TVT (p<0.02). At 3 months after TVT in 165 patients, 159 patients (96.4%) were cured, 2 patients (1.2%) were improved and 4 patients (2.4%) had failed. The mean MUCP in the failed patients was 22.5 ± 5.3 cm H₂O was significantly lower compared with that in the patients cured which was 34.7±12.0 cm H₂O (p<0.007). At 3 months after TOT in 113 patients, 100 patients (88.5%) were cured, 6 patients (5.3%) were improved and 7 patients (6.2%) had failed. The mean MUCP in the patients who failed was 27±6.3 cm H₂O was significantly lower compared with that in the patients who were cured which was 38.5±13 cm H₂O (p<0.001). Furthermore, the mean MUCP in the patients cured after TOT was significantly higher than that in the patients cured after TVT (p<0.01).

Interpretation of results

Our observation demonstrated that TOT was not inferior to TVT for the treatment of SUI 3 months after surgery. The cure rate of SUI in patients whose MUCP is low tends to be low after both TVT and TOT surgery. The mean MUCP in the patients cured after TOT was significantly higher than that in the patients cured after TVT

Concluding message

In SUI patients whose MUCP is low, TVT is better than TOT especially when it is lower than 30 cm H₂O. Evaluation of urethral pressures can be a useful prediction factor in selecting the surgical procedure to be used for the treatment of SUI.

References

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<i>Is this a clinical trial?</i>	Yes
<i>Is this study registered in a public clinical trials registry?</i>	No
<i>Is this a Randomised Controlled Trial (RCT)?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	This study was exempt from institutional ethics committee approval in the country of origin.
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes