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TRANSOBTURATOR TENSION FREE VAGINAL TAPES; ARE THEY THE WAY FORWARD IN SURGICAL TREATMENT OF URODYNAMIC STRESS INCONTINENCE

Aims of study

The tension free vaginal tape (TVT ™) procedure has revolutionised the treatment of urodynamic stress incontinence (USI) since it was described in 1996. There are, however concerns over the safety of the TVT™, most of them are related to the penetration of the retro-pubic space. Whilst wishing to avoid these complications, but keep the principle of a minimally invasive procedure to reinforce the structures supporting the urethra, Delorme in 2001 (1) described the Transobturator tape, and more recently in 2003, De Leval et al (2) described a modification to the surgical technique, which allows the passage of a trochar and tape through the obturator foramen from inside to out. Several small studies have shown similar short term success rate to TVT™ with significantly lower surgical morbidity rates. This study aims to explore the views & practice of surgeons undertaking sub-urethral vaginal tape procedures for management of urodynamic stress incontinence (USI), regarding what do they think is the best surgical approach, best tape material, and how do they perform transobturator tapes?

Study design, materials and methods

Survey based study; questionnaires were sent to 720 surgeons worldwide, randomly selected from the ICS & IUGA members. The questionnaires were sent by post and /or by email. The respondents were asked to identify themselves as gynaecologists or urologists and the type of institution in which they worked. They were asked if they carry out TVT™ procedures & whether they think that transobturator tension free vaginal tapes (TOTs) are they the way forward in surgical treatment of USI. They were asked why did they decide to do/ or not to do TOTs? Those who carried out TOTs where asked; how many do they carry out annually? Which technique do they do/ prefer? Which tape do they use & why? Whether they routinely arrange preoperative urodynamics and whether they carried out TOTs in the outpatient department, day surgery unit or as inpatients. The type of anaesthetic was requested and whether the surgeons used the concept of hydro-dissection. The respondents were asked if they used a catheter introducer whilst inserting the tape & whether they use Cystoscopy as part of the procedure. The surgeons were asked whether they routinely used a cough test and if so at what bladder volume. They were asked whether the urethra was checked after the removal of the plastic sheath to ensure the sling is not too tight and their method of checking. They were asked whether a catheter was inserted at the completion of the procedure and if so whether a suprapubic or urethral catheter was used. They were asked at what post operative volume was deemed acceptable for discharge, how do they check it & whether the patients returned for follow up and if so, how long postoperatively.

Results

433 replies were received (response rate 60%), including 2 replies from surgeons who did not perform sub-urethral tape procedures. This left 431 (59.86%) replies from 358 gynaecologists (83%) and 73 urologists (17%) for analysis. The majority of the replies were from district general hospitals 210 (48.7%), 167 (38.8%) replies were from teaching hospitals, 46 (10.1%) from regional referral centres & 8 surgeons did not specify the type of institution.

148 surgeons (34.16%) thought that TOTs are the way forward in treatment of USI, 64 surgeons (14.84%) disagreed while the majority, 219 surgeon (51%) did not make their mind yet. 308 surgeons (71.46%) stated that they carry out TVT™ procedures, 64 (14.84%) rarely carry out TVT™ and 59 (13.7%) have stopped doing TVT™ at all. Those who do not carry out TOTs (n= 240, 55.7%) their main reasons were; awaiting longer term results (88%), not convinced wit the procedure (29%), lack of training (26%), while only 3% did not know about it.

191 surgeons who perform the procedure; their main reasons were the low risk of bladder injury (78.5%), being suitable procedure for women with previous vaginal surgery (73%), avoiding the blind entry to retro-pubic space (62.8%), less operative time (48%), easier (34%), and finally, less blood loss & less risk of voiding dysfunction (31.5%).These surgeons were then asked about their experience with TOTs; 103 surgeons (54%) perform 50-100 procedures per annum, 64 (33.5%) perform <50/ year & the rest (12.5%) carry out >100/year.

69 surgeons (36.12%) use the In-Out technique only (TVT-O), 64(33.5%) use the Out-In technique only & 58 (30.38%) use both techniques. The majority of the surgeons, 74 (38.74%) would prefer to use both techniques if possible, while 64 (33.5) surgeons would only use In-Out technique compared to 53 (27.4%) would only use Out- In technique. When asked about the type of tape used; 96 (50%) surgeons use TVT-O (Gynae-care), 50 (26%) use Ob-tape (Mentor), 62 (32.5%) use Monarc tape and 21 (11%) use also other tapes. The main reasons stated for using the above tapes were; wide pores (26%), better tissue incorporation (22%), proven safety (21%), mono/multi-filament (18%), NICE approved (10%), more elastic (8%) and cheaper (5%).

Preoperative urodynamics were carried by vast majority of the surgeons (*n*=190, 99.5%). The majority of surgeons, 160 (84%) carry out TOTs in day surgery units, while 100 (52.3%) surgeons carry out TOTs as inpatients & 3 surgeons (1.6%) carried out TOTs in the outpatient department. Most surgeons (*n*=148, 77.5%) use general anaesthesia, compared with 92 (48%) surgeons use regional block, 63 surgeons (33%) use local anaesthesia & sedation and 15 surgeons (7.8%) can use local anaesthesia only.

Few surgeons deviate from the originally described TOTs procedures (1,2); 26 surgeons (13.6%) use catheter to deviate the bladder & urethra during the trochar insertion and 60 (31.41%) use routine Cystoscopy as part of the procedure. 32 surgeons(16.7%) use routine cough stress test and 17 surgeons (9 %) use dilator to check the urethra at the end of the procedure. The use of a catheter at the completion of the operation was controversial with the majority (*n*=143*,* 74.9%) do not routinely use a catheter, 45 (23.5%) routinely use urethral catheter & 3 surgeons (1.6%) routinely use suprapubic catheter. The majority of surgeons (*n* = 125, 65.4%) use a post-void residual bladder volume of <100mls as acceptable for discharge, 33 (17.3%) use a residual of between 100-200mls, 21 (11%) use a voided volume equal or greater than twice the voided volume, and 12 (6.3%) use other criteria. 70% of surgeons use bladder scan and 7.5% use real time ultrasound to estimate the post voiding residual urine volume, compared to 22.5% use in-out catheter. The majority of the surgeons (82.8 %) follow up patients up to 12 weeks.

Interpretation of results:

The response rate was satisfactory and was mainly from urogynaeclogists. The vast majority of the respondents (97%) knew about the procedure, although it can be argued that a percentage of the non-respondents might have done so as they simply did not know about the procedure. Comparable numbers of surgeons (16%) were not convinced with the procedure at all compared to those who have totally stopped TVT™ in favour of TOTs (13.7%). Lower surgical morbidity & the suitability for women with previous vaginal surgery were the main reasons for undertaking TOTs. Most of surgeons undertaking TOTs would prefer to use both techniques (Out-In & In-OUT) and the vast majority use Polypropylene mesh tapes due to the wide pores, better tissue incorporation & proven safety records. Although it is supposed that TOTs are less invasive and less painful; a tiny minority of the responding surgeons carried out TOTs as an outpatient procedure (1.6%) or performed the procedure under local anaesthesia only (7.8%). Reassuringly, nearly all of the responding surgeons undertake routine preoperative urodynamics. Few of them deviate from the originally described procedures, these variations were mainly in the use of catheter guide during the trochar insertion, routine Cystoscopy & postoperative routine catheterization; variations which seem to be inherited from the TVT™ procedure.

Conclusion:

While third of the responding surgeons think that the transobturator approach for tension free vaginal tapes is the way forward for management of USI, the majority are awaiting studies with longer term results.