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SIX HUNDRED MESHES UNDER THE URETHRA IN THE URINARY INCONTINENCE SURGICAL TREATMENT WITH THREE GENERATIONS OF SUB-MID URETHRAL TAPES: COMPARING RESULTS.

Hypothesis / aims of study

Since the marketing and success of the TVT technique, other products have been released onto the suburethral sling market. These products can be classified according to four main criteria: material and characteristics of the tape (polypropylene, macropore, monofilament); type of incision (ascending or descending approach); type of instruments (most are disposable, there are differences according to the company that manufactures); follow-up and publications (long follow-up and more studies validate results and morbidity).[1]

We hypothesise that the new system are minimally invasive procedures reducing the complications with a similar successful results in the treatment of urinary incontinence. This study aims to compare the safety and effectiveness between three generations of sub-mid slings applied for surgical treatment of urinary incontinence.

Study design, materials and methods

Retrospective study with 600 women admitted for surgical treatment of the urinary incontinence with sub-mid urethral sling. The results were revised between September 2001 and January 2010, at Urogynecology and Vaginal Surgery Unit, Clínica Las Condes, Santiago, Chile. The women included in this study had media age of 55 years old (range 32 to 76), with a weight of 62 kg (52 to 82). BMI was 27 (23 to 35) and vaginal parity 3 (0 to 5).

We reviewed our experience with three generation of mesh under the urethra applied to our patients in the Urogynecologic Unit. The first generation was represented by classical retropubic TVT. The second generation was represented by obturator techniques: TVT-O and TOT. The third generation was represented by mini-sling: TVT-Secur and MiniArc. The TVT-Secur was applied in “U”. Through the years complications and results were recorded prospectively for each of the tapes through independent protocols. During February 2010 the results were compared between the different techniques. The intraoperative and postoperative complications were reviewed. Immediate postoperative complications were considered until seven days after surgery. Late postoperative complications were considered after seven days. Criterion of cure, improvement and failure: the outcome of surgery was classified according to the number of incontinence episodes recorded during the observation period. Cure was considered to the absence of incontinence. Partial cure or improvement was considered to the presence of incontinence episodes less than one every two weeks. Failure when the incontinence episodes were more than once in a week.

Results

-Complications found in the three generations of tapes included:

For TVT group the total complications recorded were 6.3% (8/127). During intraoperative time 3.1% (4/127) presented bladder perforation with the needle detected during routinely cystoscopy. During immediate postoperative time 0.8% (1/127) presented urethral obstruction. During late postoperative time 2.4% (3/127) presented urgency de novo.

For TVT-O group the total complications recorded were 4.9% (13/266). During intraoperative time 0.4% (1/266) of the women presented bladder perforation. During immediate postoperative time 3% (8/266) presented urethral obstruction. During late postoperative time 1.5% (4/266) presented urgency de novo.

For TOT group the total complications recorded were 11.4% (4/35). During intraoperative time in 2.9% (1/35) case bladder perforation was recorded due to insufficient emptying of the bladder was perforated with the needle passage. During immediate postoperative time 5.7% (2/35) presented urethral obstruction. During late postoperative time 2.9% (1/35) presented urgency de novo.

For TVT-Secur group the total complications recorded were 5.1% (8/157). During intraoperative time 0.6% (1/157) of the women presented bladder perforation. During immediate postoperative time 5.1% (8/157) presented urethral obstruction. During late postoperative time 2.5% (4/157) presented urgency de novo.

For MiniArc group the total complications recorded were 5% (3/60). During intraoperative time not presented complications. During immediate postoperative time 1.7% (1/60) presented urethral obstruction. During late postoperative time 3.3% (2/60) presented urgency de novo.

-With regard to the cure, improvement or failure found in the three generations of tapes included:

For TVT group in a follow-up with a media of 48 months (3 to 100 months): cure was recorded in 90.6% (115/127) of women; improvement or partial cure in 5.5% (7/127) of cases; failure in 3.9% (5/127) of cases.

For TVT-O group in a follow-up with a media of 31 months (4 to 68 months): cure was recorded in 91.7% (244/266) of women; improvement or partial cure in 5.3% (14/266) of cases; failure in 3% (8/266) of cases.

For TOT group in a follow-up with a media of 22 months (18 to 42 months): cure was recorded in 91.4% (32/35) of women; improvement or partial cure in 2.9% (1/35) of cases; failure in 5.7% (2/35) of cases.

For TVT-Secur group in a follow-up with a media of 18 months (3 to 37 months): cure was recorded in 90.4% (142/157) of women; improvement or partial cure in 5.8% (9/157) of cases; failure in 3.8% (6/157) of cases.

For MiniArc group in a follow-up with a media of 12 months (3 to 20 months): cure was recorded in 93.3% (56/60) of women; improvement or partial cure in 6.7% (4/60) of cases; none failure was recorded until closing date follow-up for this analysis.

Interpretation of results

According our experience the three generation of sub-mid urethral tapes have similar results in curing patients with stress urinary incontinence, between 90.4% and 93.3%. When we compared the complications were between 11.4% and 4.9%. In cases of TOT presented 11.4% of complications but we must remember that is a group of only 60 patients in contrast to others

which have more women. The other system compared had similar number and type of complications. However, theoretically bladder perforation should be more frequent with TVT and in all those techniques in which the needle passes close to the bladder. Other complications reported are pelvic haematomas and haemorrhagic disorders, nerve lesions, pain, urethrovaginal or vesicovaginal fistulas and vascular wounds. For this reasons we have the same care when applying any of the different types of slings for stress urinary incontinence treatment. Among the necessary care is the emptying of the bladder previous to applying the needle with the sling. In others series have been described serious complications such as intestinal perforation with retropubic sling. The existence of multiples surgical approach and the variety of auxiliary instruments to apply tape under urethra should stimulate us to compare these to choose the best technique for each patient. All techniques compared in this series using macropore, monofilament polypropylene slings reducing the possibility of erosion and infection. However the surgeon's vigilance is essential in selecting the most adapted material and access to obtain good results and the lower morbidity rate.[2]

Concluding message

According our experience the three generations of sub-mid urethral slings are similar to correct the stress urinary incontinence. The simplification from original sling until the new generations represented by obturator tapes and mini-slings no assurances that there were no complications such as bladder perforation. We must have the same care when applying any type of tape. The mini-sling requires long follow-up to determine the permanence of good results.

References

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