Surgical Treatment of Women with Recurrent Stress Urinary Incontinence. A Systematic Review and Meta-analysis.

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Aims of study

The study aims to assess the current evidence of effectiveness and complications of the various surgical procedures used for treatment of women with recurrent stress urinary incontinence (R-SUI).

Study design, materials and methods

A prospective, peer-reviewed protocol was prepared a priori. A systematic literature review of all published RCTs comparing any two surgical procedures for treatment of SUI was performed in accordance with PRISMA. Studies were identified through MEDLINE, EMBASE, Cochrane library, clinicaltrials.gov, and Web of Science Library as well as ICS/IUGA conference abstract databases. Literature search was performed in July 2011 independently by two authors and updated in March 2012.

The primary outcome was the clinical cure/improvement (both patient-reported and objective outcomes) of incontinence for procedure A versus procedure B at 6-24 month follow-up. The secondary outcomes were peri-operative complications and impact on women’s quality of life and sexual function. Data was analysed using Rev-Man 5. Meta-analysis was performed using the fixed effect model and heterogeneity calculated using I2 estimate.

Results

Forty-four RCTs had confirmed subgroups of patients with R-SUI (n=498), complete data were available from 19 RCTs (n=299) towards only 4 of the pre-specified different comparisons. Meta-analysis and estimates of effects was possible only for comparisons of RP-TVt vs TO-TVt and RP-TVt vs AFS. The mean follow-up period of the included studies was 18 months (range: 3-38 months) and no patients were lost to follow up.

• RP-TVt vs TO-TVt (5 RCTS - n=135)

There was no evidence of statistically significant difference between RP-TVt and TO-TVt in either the patient-reported (OR 0.84 95%CI 0.41, 1.69) or the objective cure/improvement (OR 1.75 95%CI 0.86, 3.54). However, there was a higher risk of bladder/urethral injury with RP-TVt although not statistically significant (OR 0.27 95%CI 0.06, 1.20, p=0.09).

• RP-TVt vs AFS (2 RCTs; n=25)

Similarly, there was no significant difference between AFS and RP-TVt in the patient-reported (OR 0.83 95%CI 0.11, 6.26) or objective cure/improvement (OR 1.43 95%CI 0.22, 9.26).

• AFS vs BC (1 RCT; n=93)

There was no significant difference between AFS and Burch colposuspension (one study) in the cure/improvement rate (OR 0.62 95%CI 0.27, 1.41).

• Inside-out and outside-in TO-TVt (1 RCT; n=46)

There was a trend towards higher rate of patient-reported cure/improvement (OR 3.00 95%CI 0.85, 10.57, p=0.09) and objective cure/improvement (OR 3.22 95%CI 0.96, 11.41, p=0.06) in favour of the inside-out route, but this did not reach statistical significance (one study).

Concluding message

TO-TVt has similar patient-reported and objective cure/improvement rates when compared to the RP-TVt in the surgical treatment of women with recurrent SUI. There was a trend towards higher success rate with the inside-out TO-TVt when compared to the outside-in approach. Similarly, there was no significant difference between AFS and RP-TVt in the patient-reported and objective cure/improvement rates. The results of this study are unique as no previous meta-analysis was performed for R-SUI, however, they should be interpreted with caution as evidence in this field is quite limited and is of low quality. Further primary research is needed to guide clinicians and patients towards the best surgical treatment of this increasingly prevalent and distressing condition.

Abbreviations: RP-TVt Retropubic Tension-free Vaginal Tape
TO-TVt Trans-Obturator Tension-free Vaginal Tape
AFS Autologous Fascial Sling
BC Burch Colposuspension

Figure 1: Study Flow Diagram

Figure 2: Patient Reported Outcome RP-TVt vs TO-TVt

Figure 3: Objective Outcome RP-TVt vs TO-TVt

Figure 4: Patient-reported Outcome AFS vs RP-TVt

Figure 5: Objective Outcome AFS vs RP-TVt