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Updated systematic review and meta-analysis of the comparative data on colposuspensions, pubovaginal slings and midurethral tapes in the surgical treatment of female stress urinary

incontinence

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#### **ABSTRACT**

**CONTEXT:** Retropubic (RT-TVT) and transobturator miurethral (TO-TVT) mid-urethral sling (MUS) are popular surgical treatments for female stress urinary incontinence (SUI). The long-term efficacy and safety of the procedures is still a topic of intense clinical research and several randomized controlled trials (RCTs) have been published in the last years

**OBJECTIVE:** To evaluate the efficacy and safety of MUS compared with other surgical treatments for female SUI.

**EVIDENCE ACQUISITION:** A systematic review and meta-analysis of the literature was performed using the Medline, Scopus, and Web of Science databases to update our previously published analyses.

**EVIDENCE SYNTHESIS:** Twenty-eight RCTs were identified. In total, the meta-analyses included 15,855 patients. Patients receiving MUS had significantly higher overall (odds ratio [OR]: 0.59;p=0.0003) and objective (OR: 0.51; p=0.001) cure rates than those receiving Burch colposuspension (BC). Patients undergoing MUS and pubovaginal slings had similar cure rates. Patients treated with RT-TVT had higher subjective (OR: 0.83; p=0.03) and objective (OR: 0.82; p=0.01) cure rates than those receiving TO-TVT. However, the latter had lower risk of intraoperative bladder or vaginal perforation (OR 2.4;p=0.0002), pelvic hematoma (OR 2.61;p=0.002), urinary tract infections (OR 1.31;p=0.04) and voiding lower urinary tract symptoms (LUTS) (OR 1.66;p=0.002). Sensitivity analyses limited to RCTs with follow-up durations >60 mo demonstrated similar outcomes for RP-TVT and TO-TVT. No significant differences in efficacy were identified comparing inside-to-out and outside-to-in TO-TVT but vaginal perforations were less common with the former (OR 0.21;p=0.0002).

**CONCLUSIONS:** The present analysis confirms the superiority of MUS over BC. The studies comparing insertion of RT-TVT and TO-TVT showed higher subjective and objective cure rates for the RP-TVT but at the cost of higher risks of some complications and voiding LUTS. Efficacy of

inside-out and outside-in techniques of TO-TVT insertion was similar, although the risk of vaginal

perforation was lower in the inside-to-out TO-TVT.

**PATIENT SUMMARY:** 

Retropubic and transobturator midurethral slings are a popular treatment for female stress urinary

incontinence. The available literature suggest that those slings are either more effective or safer than

other older surgical procedures. Retropubic tapes are followed with slightly higher continence rates

as compared with the transobturator tapes but are associated with higher risk of intra- and

postoperative complications.

KEY WORDS: stress urinary incontinence, Burch colposuspension, pubovaginal sling, stress

urinary incontinence, retropubic vaginal tape, tension free tape, transobturator tape

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The present analysis confirms the superiority of MUS over Burch colposuspension. The studies

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#### INTRODUCTION

Surgical treatment is often the preferred option for women with stress urinary incontinence (SUI) who have failed conservative management strategies [1].

Several different surgical procedures have been reported, with synthetic midurethral slings (MUS) being the most commonly adopted surgical procedures. Several systematic reviews and metaanalyses of randomized controlled trials comparing the different surgical approaches have been reported [2-6]. In our previous systematic review, we have shown that women treated with retropubic tension-free vaginal tapes (RP-TVT) had slightly higher objective continence rates than those treated with Burch colposuspension (BC) but they faced a higher risk of intraoperative complications. RP-TVT and pubovaginal slings (PVS) were similarly effective, although patients with PVS were more likely to experience postoperative storage lower urinary tract symptoms (LUTS). RP-TVT were associated with objective cure rates slightly higher than transobturator tension-free vaginal tapes (TO-TVT) but subjective cure rates were similar. TO-TVT, however, had a lower risk of bladder/vaginal perforations and postoperative storage LUTS [4].

Furthermore, concerns have been raised on the use of synthetic mesh for surgical treatment of female SUI and prolapse surgery. That was primarily due to the risk of complications —including mesh exposure/erosion, dyspareunia, infections, and pain. The FDA issued a series of statements concluding that serious complications associated with transvaginal mesh for pelvic organ prolapse (POP) repair and are not un-common nevertheless they emphasized that this does not apply to use of mesh for SUI or abdominal surgery. However, very recently, a Scottish population-based study, demonstrated that mesh surgical procedures for SUI were associated with lower risk of early postoperative complications and subsequent prolapse surgery, as well as similar risks of further incontinence surgery and later complications, as compared with open colposuspension [7]. In late 2015, various working groups worldwide reported on the use of transvaginal mesh in Scotland, England, and Europe (SCENIHR) in surgical treatment of SUI and POP [8-10]. All have emphasized the need of further research in the field. Therefore, we elected to

update our previous meta-analyses of the literature in the field of primary surgical treatment of female SUI.

#### MATERIALS AND METHODS

The updated systematic review of the literature was performed in July 2014 and last updated on 1st November 2016 using the Medline, Scopus, and Web of Science databases. The Medline search used a complex search strategy including both medical subject heading (MeSH) and free text protocols, as was done in the previous reviews [2-4]. Specifically, the MeSH search was conducted by combining the following terms retrieved from the MeSH browser provided by Medline: Urinary Incontinence, Stress, and Suburethral Slings. Multiple "free text" searches were also performed, searching for the following terms individually in the fields title and abstract of the records: Urinar\*incont\*, TVT, tension-free vaginal tape\*, Tension-free vaginal sling\*, Transobturator tape\*, Trans-obturator sling\*, TVT-obturator, TVT-O, TOT, suprapubic arc sling\*, SPARC sling\*, intravaginal slingplasty, IVS sling, Uratape, ObTAPE, Prepubic sling\*, Prepubic TVT, Prepubic tape\*, PelviLace, Ureter, Aris, In-Fast, Monarc, I-Stop, and BioArc. Subsequently, the search results were pooled, and the following limits used: humans, Entrez Date from 2009/08/01. No limitations regarding language of publication or type of publication were used. The searches on Scopus, and Web of Science used only the free-text protocol, with the same key words. Subsequently, the query results were pooled and the same temporal limit applied. Moreover, Cochrane Database of Systematic Review was searched using the key word "urinary incontinence". Hand-search of congress abstracts was not performed.

A total of 958 records were retrieved from Medline, 1789 from Scopus, and 1477 from Web of Science. Four of the authors reviewed the full texts to select the papers relevant to the review topic. Specifically, all the RCTs, discussing outcomes (ie, continence rates, satisfaction rates, complication rates) from the use of MUS as predominantly primary surgical treatment of SUI were

selected. RCTs reporting on the use of MUS exclusively in patients who had previously failed other surgical treatments were excluded. The selected papers were categorized according to the grade of evidence: an adequately sampled single RCT was considered to have level 1b evidence; a low-quality RCT to have level 2b evidence [11]. The quality of the retrieved RCTs was assessed using the Jadad score [12].

To evaluate the efficacy of the different procedures, both objective criteria (stress test, pad test, urodynamics) and subjective criteria (patients' perception of the clinical improvement, expressed by validated questionnaires, institutional questionnaires, or open interview) were considered. In the case of papers reporting patient outcomes through the use of mixed subjective and objective end points (eg, no referred leakage and negative stress test, no referred leakage and negative pad test), an overall continence rate was shown. Whenever multiple reports at different follow-up duration were available for a RCT, the figures from the reports with longest follow-up were considered. Meta-analysis was conducted using Review Manager software v. 4.2 (Cochrane Collaboration, Oxford, UK). Specifically, statistical heterogeneity was tested using the chi-squared test. A value of p < 0.10 was used to indicate heterogeneity. In the case of a lack of heterogeneity, fixed-effects models were used for the meta-analyses. The results were expressed as weighted means difference (WMD) and standard deviations for continuous outcomes and as an odds ratio (OR) with a 95% confidence interval (CI) for dichotomous variables. In the comparisons of RP-TVT and TO-TVT, the large number of publications with appropriate data allowed us to perform subgroup analyses according to the device used. In this case, we differentiated retropubic TVTTM vs inside-to-out trasobturator (TVT-O<sup>TM</sup>), retropubic TVT<sup>TM</sup> vs outside-to-in TO tapes (including different kits) and other retropubic vs other transobutaror tapes (reporting studies where either retropubic tapes different from TVTTM were used or studies where both inside-to-out and outside-to-in TO tapes were used without differentiating the results). No covariate adjustments were performed, as usually

done in the Cochrane collaboration systematic reviews of RCTs.

For all the comparisons, sensitivity analyses limited to RCTs of good methodological quality (i.e., those with a Jadad score  $\geq$ 3) and to RCTs with follow-up duration  $\geq$  60 months were performed. The presence of publication bias was evaluated through a funnel plot, as previously reported [13]. The study complied with the recently reported Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [14].

#### **RESULTS**

Figure 1 summarizes the literature review process which lead to the identification of the 30 papers reporting data from 28 different RCTs used to update the meta-analysis (Figure 1).

Specifically, two papers compared MUS and BC [15, 16]; three papers compared MUS and PVS [17-19]; 20 papers compared RP-TVT and TO-TVT [20-39]; two papers compared RP-TVT and 2 different types of TO-TVT [40; 41]; 3 studies compared different TO-TVT [42-44].

Seventeen reports were from 15 high-quality RCTs [16, 19, 21-25, 27-29, 32-34, 38, 41-43].

Only 7 RCTs reported outcomes of surgery at a follow-up interval  $\geq$  60 mo [16, 19, 21, 34, 37-39]. In total, the metaanalyses included 15,855 patients.

#### Randomized controlled trials comparing midurethral tapes to Burch colposuspension

Supplemental Table 1 in the appendix summarizes the results of the only 2 new RCTs reporting continence, and complication rates following MUS or BC\_as primary treatment for stress urinary incontinence. Of note, all BCs in these 2 new RCTs had been performed laparoscopically.

Fig. 2 shows the forest plots concerning the meta-analyses of continence rates following MUS or BC.

MUS were associated with significantly higher cure rates compared to BC, considering success rates evaluated according to any definition of continence (81.82% vs 73.64%, respectively; OR:

0.59; 95% CI: 0.45–0.79; p = 0.0003; Fig. 2a), and objective continence rates (negative stress test: 79.7% vs 67.8%, respectively; OR: 0.51; 95% CI: 0.34–0.76; p = 0.001; Fig. 2b). Notably, stratifying the BC outcomes according to the surgical approach (open vs laparoscopic), the significant difference in favor of MUS pertained for "any definition of continence" and "objective continence rates". Similarly, there was some evidence of an effect in favor of MUS as compared to laparoscopic BC for "any definition of continence" but it did not meet conventional levels of statistical significance (OR,0.49 95%CI 0.23, 1.04, p=0.06 – Figure 2-A).

Subgroup analyses limited to the 3 studies with follow-up duration  $\geq$ 60 months demonstrated better objective cure rate for MUS (OR: 0.54; 95% CI: 0.36–0.82; p = 0.004) but only a non-statistically significant trend for overall continence rate (OR: 0.39; 95% CI: 0.15–1.03; p = 0.06) and subjective continence rate (OR: 0.69; 95% CI: 0.45–1.06; p = 0.09)

#### Randomized controlled trials comparing midurethral tapes to pubovaginal slings

Supplemental Table 2 in the appendix summarized the results of the new RCTs reporting continence, and complication rates following MUS or PVS as primary treatment for stress urinary incontinence.

Fig. 3 shows the forest plots concerning the metaanalyses of cure, and complication rates.

On the whole, MUS and PVS were associated with similar effectiveness and similar prevalence of complications. However, there was there was some evidence of an effect in favor of MUS for reoperation rates but it did not meet conventional levels of statistical significance (3.9% vs 7.7%, respectively; OR 0.5; p=0.06 – Figure 3-G).

Only one single RCT had a follow-up duration  $\geq$  60 mo [19].

# Randomized controlled trials comparing retropubic with transobturator tape

Supplemental Table 3 and 4 in the appendix summarize continence, complication, and reoperation rates of the RCTs comparing RP-TVT and TO-TVT as "primary" treatment for SUI.

Fig. 4 shows the forest plots concerning the metaanalyses of continence, complication, and reoperation rates.

Objective (86% vs 84%, respectively; OR: 0.82; 95% CI: 0.70–0.96; p = 0.01; Fig. 4b) and subjective (78% vs 74%, respectively; OR: 0.83; 95% CI: 0.70–0.98; p = 0.03; Fig. 4c) continence rates were superior in RP-TVT, whereas overall continence rate was similar with RP-TVT and TO-TVT. Considering "any definition of cure" there was no statistical significance between RP-TVT and TO-TVT groups (OR 1.16, 95% CI: 0.89-1.51, p=0.27 – Figure 4-A).

With regards to complications, risk of intraoperative bladder or vaginal perforation (4.8% vs 1.6%, respectively; OR 2.4; 95% CI 1.51 - 3.90; p = 0.0002; Fig. 4-D), pelvic hematoma (1.7% vs 0.3%, respectively; OR 2.61; 95% CI 1.41 - 4.82; p = 0.002; Fig. 4-E), urinary tract infections (10% vs 7.9%, respectively; OR 1.31; 95% CI 1.02 - 2.68; p = 0.04; Fig. 4-G) and voiding LUTS (9.2% vs 5.7%, respectively; OR 1.66; 95% CI 1.2 - 2.3; p = 0.002; Fig. 4-I) were significantly higher in RP-TVT. Conversely, the risk of vaginal erosion was lower in RP tapes (1.8% vs 2.8%, respectively; OR 0.64; 95% CI 0.44 - 0.92; p = 0.002; Fig. 4-F), which was mainly due to the higher risk of vaginal erosions in outside-to-in TO-TVT. Finally, rates of storage LUTS, clean intermittent self-catheterization (CISC)/recatheterization, and re-operation were similar in RP-TVT and TO-TVT tapes.

Table 1 summarizes sensitivity analyses performed on high quality RCTs. Such analyses reconfirmed advantages for RP-TVT in terms of objective cure rates (OR 0.76; p = 0.006) and risk of vaginal erosions (OR 0.56; p = 0.03), whereas bladder/vaginal perforations were less prevalent with TO tapes (OR 1.41; p = 0.002).

Further sensitivity analyses limited to the 5 RCTs with follow-up durations >60 mo [21, 34, 37-39] demonstrated similar outcomes for RP-TVT and TO-TVT in terms of objective cure rate, subjective cure rate, vaginal erosions, storage and voiding LUTS, and reoperation rates (see supplemental figure 1).

# Randomized controlled trials comparing different transobturator midurethral tapes

Supplemental Tables 5 and 6 in the appendix summarize continence, complication, and reoperation rates of the RCTs comparing different TO-TVT tapes as the treatment for primary SUI.

Fig. 5 shows the forest plots concerning the metaanalyses of continence, complication, and reoperation rates.

No significant differences in efficacy were identified comparing inside-to-out and outside-to-in TO-TVT. Regarding complications, vaginal perforations were less common with the inside-to-out TO-TVT (2.6% vs 11.8%, respectively; OR 0.21; p=0.0002). Moreover, there was also a non-statistically significant trend for vaginal erosions in favor of inside-to-out TO-TVT (OR 0.37; p=0.06). All the other complications were similarly prevalent inside-to-out and outside-to-in TO-TVT.

No RCT has follow-up duration  $\geq$  60 mo.

#### Publication bias

Funnel plots of all the studies used in this meta-analysis were generated for all the evaluated comparisons. Only few studies lay outside the 95% CI with an even distribution about the vertical, suggesting little evidence of publication bias (data not extensively shown).

#### DISCUSSION

Surgical treatment is the standard approach for women with SUI who have failed conservative management [45]. More than 200 surgical procedures have been described over time. However, BC,

PVS and MUS are the most popular and effective surgical treatments for woman with SUI [46]. To date, MUS represent the most frequently used surgical intervention in Europe for women with SUI [45]. Current EAU guidelines recommend MUS in women with uncomplicated SUI as the preferred surgical intervention and BC (either open or laparoscopic) or autologous PVS in women with SUI if MUS cannot be considered [45]. In 2010, in a previous systematic review and meta-analyses of RCTs evaluating the efficacy, complication, and reoperation rates of MUS compared with other surgical treatments for female SUI, Novara et al previously showed a statistically significant higher overall and objective cure rates in favor of MUS compared to BC, although at the cost of a statistically significant higher risk of bladder and vaginal perforations. The comparison between MUS and PVS showed similar overall and subjective cure rates although the safety profile was different. MUS were associated with higher risk of bladder perforation while the incidence of storage LUTS and the reoperation rate were higher among patients undergoing PVS [4]. The comparison between retropubic and trans-obturator routes for MUS placement showed a slightly higher objective cure rate in favor of the former although subjective cure rates were similar. Again, the safety profile was different: TO-TVT were associated with a lower risk of bladder and vaginal perforations, hematoma, and storage LUTS. Conversely, the incidence of vaginal erosion was higher among patients receiving TO-TVT and was mainly due to the higher risk of vaginal erosions in outside-to-in TO-TVT. The reoperation rate, the incidence of urinary tract infections, and the need for clean intermittent catheterization or re-catheterization was similar between the two techniques. Finally, based only on the evidences from three available RCTs, the meta-analysis demonstrated similar outcomes for the inside-out and outside-in procedures in terms of objective and subjective cure rates and safety profile [4].

Despite being based on many trials of good methodological quality, that meta-analysis had some limitations such as heterogeneity of outcomes measures and the lack of RCTs with long term follow-up as only two studies reported data at follow-up  $\geq 60$  months. Due to the fact that several RCTs have been published in the field since the publication of that report, we elected to update our

previous meta-analysis. The updated comparison among MUS and BC reconfirmed the superiority of MUS in terms of overall and objective continence rates as well as the equivalence in terms of subjective continence rates. Those results were mainly determined by the differences observed between MUS and open BC. Similarly, there was a trend towards more favorable outcomes with MUS compared to laparoscopic BC in all sub-analyses. Sensitivity analyses limited to the RCTs with follow-up duration ≥60 mo reconfirmed the advantages in terms of objective continence rates, whereas only non-statistically significant trend in favor of MUS was found for overall and subjective continence rates.

With regards of the comparison among MUS and PVS, the present analysis reconfirmed the absence of significant differences between both groups in terms of overall and subjective continence rates, as well as prevalence of pelvic hematoma, vaginal erosions, voiding LUTS. Conversely, the incidence of storage LUTS was significantly lower in patients treated with MUS. Notably, while the previous meta-analysis showed higher re-operation rate in patients receiving PVS, the present report showed a similar trend but did not reach statistical significance.

On comparing RP-TVT and TO-TVT, we found overall higher objective and subjective continence rates in patients treated with RP-TVT. However, although statistically significant, such difference in success rates were minimal (just 2% and 4% difference in objective and subjective cure rates, respectively) and probably of marginal clinical relevance if we consider the difference in complication rates. Interestingly, the study by Costantini et al. found that the long-term continence rate after MUS placement tended to decrease in patients who underwent TO-TVT, whereas remained stable for those who underwent RP-TVT [37]. Yet, our estimations including only RCTs with at least 5-year follow-up did not show any difference in objective or subjective cure rates between the retropubic and transobturator approaches. Except for vaginal erosions, our results showed the transobturator approach to be associated with lower risk of most intraoperative and postoperative complications, which is the main reasons why TO-TVT is now preferred by most surgeons for the primary surgical treatment of female over RP-TVT. Reassuringly, the above results

pertained on sensitivity analyses limited to the RCTs of highest methodological quality. In the end, retropubic approach might offer a slight advantage over the transobturator approach in terms of objective success rates but at the costs of higher complication rate.

With regard to the comparison between inside-out and outside-in TO-TVT, we found no statistically significant differences between the two surgical approaches in terms of continence rates, whereas the risk of vaginal perforation was lower in inside-to-out TO-TVT. Moreover, there was also a clear trend in favor of inside-to-out TO-TVT for vaginal erosions, although it did not reach statistical significance.

There has been a growing interest in the likehood of chronic pain and dyspareunia following MUS. In our review, only a limited number of RCTs reported on long-term pain following surgery for SUI. Kenton et al reported a few cases of long-term pain at 5-yr follow-up following RP-TVT or TO-TVT [47]. Interestingly, Khan et al. reported presence of scar pain also following autologous PVS, indicating that such risk is not limited to MUS [19]. Two recent studies reported 6.4% and 9% groin/inguinal pain/discomfort at 7 and 10-years follow-up respectively following TO-TVT [39,49]. Intractable suprapubic pain has been previously described following colposuspension and defined as post-colposuspension syndrome. Even less data are available on long-term prevalence of dyspareunia in patients receiving MUS for SUI. The available RCTs have reported just a few cases of de novo dyspareunia [32, 44]. However, the available literature seems to suggest improvements in sexual function for the sexually active patients treated with MUS for SUI [50-51].

The present study has several strengths. First, represents the most up-to-date and most comprehensive summary of the currently available evidence in surgical treatments of female SUI, including the most commonly adopted surgical treatments, with the only exception of the single-incision mini-sling. That choice was in line with the inclusion and exclusion criteria set at the moment of the original systematic reviews and meta-analyses [2-4]. Moreover, a recent systematic review and meta-analysis published by Mostafa el at. [48], demonstrating similar

outcome for mini-slings and traditional MUS. However, most of the available RCTs reported only short- or intermediate-term follow-up data. Secondly, the paper complies with the currently available standard to report systematic review and meta-analysis [14]. Finally, the review included a relatively high number of RCTs with long-term follow-up ( $\geq$ 60 months) which bridges a significant gap in the current literature. Taken together, those data corroborate the findings of the previous reports of ours with stronger results based on large number of patients included in analyses and, above all, larger number of studies with follow-up duration  $\geq$ 60 months.

However, we acknowledge a number of limitations. First, a small percentage of the patients included in some RCTs had already received previous surgical treatments for SUI. However, such percentage was extremely low. Similar to our previous reports, the evaluation of subjective and objective outcomes was heterogeneous and not all studies utilized validated questionnaires. Although the number of studies with follow-up  $\geq 60$  months was higher with respect to previous meta-analysis, the short duration of the follow-up remains a limit of available literature as most studies report short- or intermediate-term follow-up. Limited data were available of potentially interesting outcomes such as long-term pain and dyspareunia. Moreover, the accuracy of complication reporting is limited in most RCTs, not complying with the standardized Martin criteria [52]. Finally, studies comparing MUS to other surgical treatments, such as bulking agent injections are lacking.

#### **CONCLUSIONS**

Overall, the literature summarized in this updated meta-analysis confirms the superiority of MUS over Burch colposuspension and PVS for the treatment of primary female SUI. MUS are significantly more effective than BC in terms of overall and objective continence rates. Although equivalent to PVS in terms of overall and subjective continence rates, MUS show a statistically significant lower incidence of storage LUTS. The studies comparing insertion of the MUS by the

retropubic and transobturator routes showed a slightly higher rate of objective cure rate in favor of the RP-TVT but at the cost of higher risks of intra-operative complications and voiding LUTS. No significant differences emerged from comparison of inside-out and outside-in techniques of TO-TVT insertion with regard to efficacy, although the risk of vaginal perforation and, in a lower extent, of vaginal erosions were more favorable in the inside-to-out TO-TVT. The heterogeneity in outcome measures and the lack of RCTs with long-term follow-up remain major limits of available literature.

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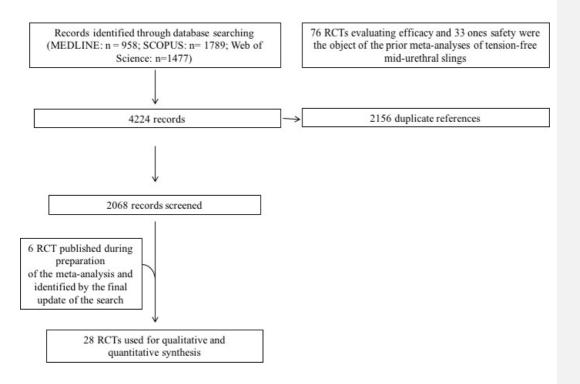
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Field Code Changed

Formatted: English (U.K.)

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Figure 1: Fig. 1 – Flow diagram of the systematic review and meta-analysis.



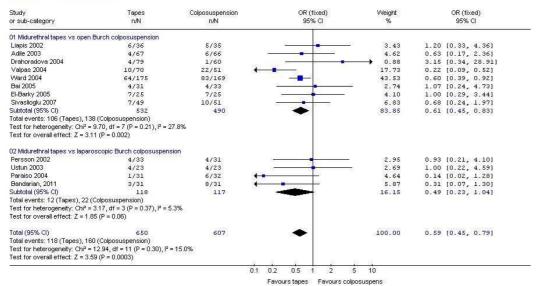
**RCT** = randomized controlled trial

Figure 2: Forest plots of comparisons after midurethral tapes and Burch colposuspension: Overall cure rate: continence rate according to (a) any definition of continence; (b) objective continence rate; (c) subjective continence rate;

# A) any definition of continence

Mid-urethral tapes in SUI Reviews

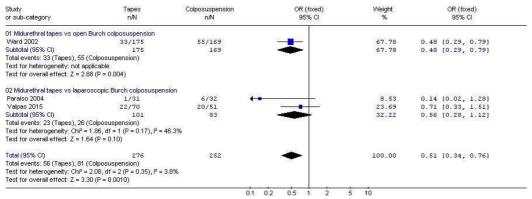
Comparison: Outcome: 01 Mid-urethral tapes Vs. Burch colposuspension 21 Overall cure rate



#### B) Objective continence rate

Mid-urethral tapes in SUI Review

01 Mid-urethral tapes Vs. Burch colposuspension 22 Objective cure rate - negative stress test Comparison: Outcome



Favours tapes Favours colposuspens

# C) Subjective continence rate

Review: Mild-urethral tapes in SUI
Comparison: 01 Mid-urethral tapes Vs. Burch colposuspension
Outcome: 23 Subjective cure rate

Study or sub-category	Tapes n/N	Colposuspension n/N	OR (fixed) 95% CI	Weight %	OR (fixed) 95% Cl
01 Midurethral tapes vs open	Burch colposuspension				
Sivaslioglu 2007	7/49	8/51	5 <u> </u>	10.03	0.90 [0.30, 2.69]
Jelovsek 2008	12/25	16/28		11.71	0.69 [0.23, 2.05]
Ward 2008	51/98	46/79	9 <del></del>	36.45	0.78 [0.43, 1.41]
Subtotal (95% CI)	172	158		58.19	0.78 [0.49, 1.25]
Total events: 70 (Tapes), 70 ( Test for heterogeneity: Chi <sup>2</sup> = Test for overall effect: Z = 1.0	0.11, df = 2 (P = 0.95), l2 =	0%			
02 Midurethral tapes vs lapar	oscopic Burch colposusper	nsion			
Persson 2002	16/38	15/32	77 <del></del>	14.07	0.82 [0.32, 2.12]
Valpas 2015	25/70	25/51		27.74	0.58 [0.28, 1.21]
Subtotal (95% CI)	108	83		41.81	0.66 [0.37, 1.18]
Total events: 41 (Tapes), 40 ( Test for heterogeneity: Chi² = Test for overall effect: Z = 1.4	0.34, df = 1 (P = 0.56), l2 =	0%			
Total (95% CI) Total events: 111 (Tapes), 11 Test for heterogeneity: Chi² = Test for overall effect: Z = 1.6	0.64, df = 4 (P = 0.96), l2 =	241	•	100.00	0.73 [0.51, 1.05]
		0.1	0.2 0.5 1 2 Favours tapes Favours co	5 10	

 ${\bf CI}={\bf confidence}$  interval;  ${\bf OR}={\bf odds}$  ratio;  ${\bf SUI}={\bf stress}$  urinary incontinence.

Fig. 3 – Forest plots of comparisons after midurethral tapes and pubovaginal sling: (a) Continence rate according to any definition of continence; (b) subjective continence rate; (c) pelvic hematoma; (d) vaginal erosions: (e) storage lower urinary tract symptoms; (f) voiding lower urinary tract symptoms; (g) reoperation rate.

# $\textbf{A) Continence \ rate \ according \ to \ any \ definition \ of \ cure}$ ${\tiny \textbf{Mid-urethral tapes in SUI}}$

Review 02 Midurethral tapes Vs. pubovaginal slings 01 Overall cure rate Comparison: Outcome:

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N		OR (fixe 95% (		Weight %	OR (fixed) 95% Cl
Abdel-Fattah 2004	7/60	12/68			_	22.97	0.62 [0.23, 1.68]
Bai 2005 II	4/31	2/28		- 0		4.23	1.93 [0.32, 11.43]
Amaro 2007	7/20	9/21	-		1000	13.19	0.72 [0.20, 2.53]
Guerrero 2008	32/72	41/79			-99	50.21	0.74 [0.39, 1.41]
Tcherniakovsky 2009	2/21	1/20				2.14	2.00 [0.17, 23.96]
Wadie, 2010	1/24	3/39	4	- 12		- 5.06	0.52 [0.05, 5.32]
Al-azzawi, 2014	2/40	1/40	39 <u>—</u>	12 10		2.20	2.05 [0.18, 23.59]
otal (95% CI)	268	295		-		100.00	0.80 [0.52, 1.26]
otal events: 55 (Midurethral	tapes), 69 (Pubovaginal sling)			500.00			Children Sant-Santa Constitution
	2.50, df = 6 (P = 0.87), l2 = 09						
Test for overall effect: $Z = 0$ .							
	1 1		_1_1				
			0.1 0.2	0.5 1	2	5 10	
			Fat	ourstanes F	Favours slin	a .	

# B) Subjective continence rate

Mid-urethral tapes in SUI

Comparison: Outcome: 02 Midurethral tapes Vs. pubovaginal slings 02 Subjective cure rate

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N			R (fixe 95% C			Weight %	OR (fixed) 95% Cl
Arunkalaivanan 2003	10/68	8/74		45				17.36	1.42 [0.53, 3.84]
Basok 2008	38/72	32/67		72				41.58	1.22 [0.63, 2.38]
Sharifiaghdas 2008	3/25	6/36	98					11.50	0.68 [0.15, 3.03]
Khan 2015	17/63	15/61		( <del>)</del>	-			29.56	1.13 [0.51, 2.54]
Fotal (95% CI)	228	238			-	-		100.00	1.17 [0.76, 1.80]
Total events: 68 (Midurethral	tapes), 61 (Pubovaginal sling)	i companie			CANADA STOR				Spring Control Applications (School Spring)
Test for heterogeneity: Chi <sup>2</sup> =	0.67, df = 3 (P = 0.88), I <sup>2</sup> = 09	%							
Test for overall effect: $Z = 0$ .	70 (P = 0.48)								
			0.1 0.2	0.5	4	2	5	10	
			Fav	ours tape	s F	avours	sling		

#### C) Pelvic hematoma

Review: Comparison: Outcome: Mid-urethral tapes in SUI 02 Midurethral tapes Vs. pubovaginal slings 04 Complication rate - haematoma

Midurethral tapes OR (fixed) 95% CI Study or sub-category Pubovaginal sling n/N OR (fixed) 95% CI Weight % n/N Arunkalaivanan 2003 Basok 2008 Sharifiaghdas 2008 Tcherniakovsky 2009 Wadie, 2010 2/68 0/72 0/48 0/21 3/74 0/67 0.72 [0.12, 4.43] Not estimable Not estimable Not estimable 5.04 [0.20, 128.89] 0/52 0/20 0/39 11.48 Total (95% CI) 233 Total events: 3 (Midurethrial tapes), 3 (Pubovaginal sling) Test for heterogeneity: Chi² = 1.06, df = 1 (P = 0.30), P = 5.9% Test for overall effect: Z = 0.26 (P = 0.80) 1.21 [0.28, 5.35] 100.00 0.1 0.2 0.5 10 Favours tapes Favours sling

# D) Vaginal erosions

Mid-urethral tapes in SUI 02 Midurethral tapes Vs. pubovaginal slings 06 Complication rate - vaginal erosion

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N	OR (fixed) 95% Cl	Weight %	OR (fixed) 95% CI
Arunkalaivanan 2003	0/68	0/74			Not estimable
Basok 2008	0/72	0/67			Not estimable
Tcherniakovsky 2009	1/21	0/20	×	35.73	3.00 [0.12, 78.04]
Wadie, 2010	1/24	0/39	10	27.10	5.04 [0.20, 128.89]
Khan 2015	1/63	0/61	-	37.18	2.95 [0.12, 73.88]
Total (95% CI)	248	261	-	100.00	3.54 [0.54, 22.96]
Total events: 3 (Midurethral to	apes), 0 (Pubovaginal sling)		State of the state		SERVICE BUT SEE SEE SEE SEE SEE
Test for heterogeneity: Chi <sup>2</sup> =	$0.07$ , df = 2 (P = $0.97$ ), $l^2 = 09$	6			
Test for overall effect: $Z = 1$ .	32 (P = 0.19)				
		0.01	0.1 1 1	0 100	
			Favoure tange Favoure	olina	

# E) Storage lower urinary tract symptoms (LUTS)

Mid-urethral tapes in SUI

12 Midurethral tapes Vs. pubovaginal slings

13 Complication rate - storage LUTS

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N	OR (random) 95% CI	Weight %	OR (random) 95% CI
Abdel-Fattah 2004	10/68	13/74		23.00	0.81 [0.33, 1.99]
Basok 2008	23/72	52/67	<b>4</b>	25.12	0.14 [0.06, 0.29]
Sharifiaghdas 2008	5/48	15/52	<del></del>	20.05	0.29 [0.10, 0.86]
Al-azzawi, 2014	2/40	2/40	200	10.62	1.00 [0.13, 7.47]
Khan 2015	7/63	11/61	2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	21.21	0.57 [0.20, 1.58]
Total (95% CI)	291	294		100.00	0.40 [0.18, 0.88]
Total events: 47 (Midurethra	l tapes), 93 (Pubovaginal sling)		254676-314		SECURIOR SECURIOR PROPERTY
Test for heterogeneity: Chi <sup>2</sup>	= 11.39, df = 4 (P = 0.02), l7 = 6	4.9%			
Test for overall effect: Z = 2	2.26 (P = 0.02)				
			0.1 0.2 0.5 1 2	5 10	
			Favours tapes Favours s		

# F) Voiding lower urinary tract symptoms (LUTS)

Mid-urethral tapes in SUI

02 Midurethral tapes Vs. pubovaginal slings

08 Complication rate - voiding LUTS Review: Comparison: Outcome:

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N				R (fixe 95% (			Weight %		OR (fixed) 95% CI
Abdel-Fattah 2004	5/68	4/74			9				22.76	1.39	[0.36, 5.40]
Bai 2005_II	4/31	2/28				- 12	-		→ 11.74	1.93	[0.32, 11.43]
Basok 2008	8/72	8/67					4000		47.23	0.92	[0.33, 2.61]
Al-azzawi, 2014	2/40	3/40	8					_	18.27	0.65	[0.10, 4.11]
Total (95% CI)	211	209			10/25		-		100.00	1.10	[0.55, 2.18]
Total events: 19 (Midurethra	Itapes), 17 (Pubovaginal sling)					122					POSSESSES PROPERTY NO. 100-196
Test for heterogeneity: Chi <sup>2</sup>	= 0.92, df = 3 (P = 0.82), l2 = 09	6									
Test for overall effect: $Z = 0$	I.26 (P = 0.79)										
			0.1	0.2	0.5	4	2	5	10		
				Favou	ırs tape	s F	avours	sling			

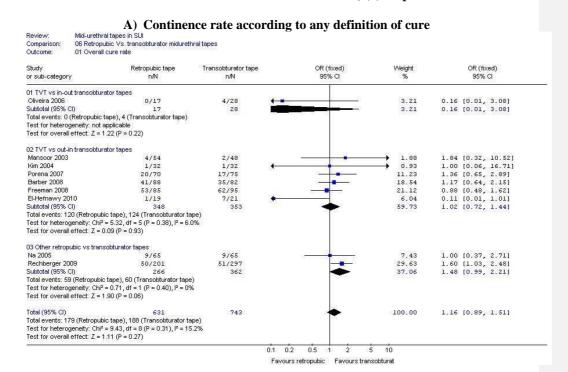
# G) reopearation rate

Mid-urethral tapes in SUI 02 Midurethral tapes Vs. pubovaginal slings 10 Reoperation rate

Study or sub-category	Midurethral tapes n/N	Pubovaginal sling n/N	OR (fixed) 95% CI	Weight %	OR (fixed) 95% CI
Arunkalaivanan 2003	3/68	7/74		29.46	0.44 [0.11, 1.78]
Kondo 2005	0/31	4/29	+	21.02	0.09 [0.00, 1.75]
Basok 2008	0/72	2/67	<del></del>	11.82	0.18 [0.01, 3.83]
Sharifiaghdas 2008	1/48	2/52	+	<b>—</b> 8.64	0.53 [0.05, 6.06]
Khan 2015	7/63	7/61		29.06	0.96 [0.32, 2.93]
Fotal (95% CI)	282	283		100.00	0.50 [0.24, 1.03]
Total events: 11 (Midurethral	tapes), 22 (Pubovaginal sling)		8810-0-2012		
Fest for heterogeneity: Chi² =	3.09, df = 4 (P = 0.54), l2 = 09	6			
Test for overall effect: $Z = 1$ .	89 (P = 0.06)				

CI = confidence interval; OR = odds ratio; SUI = stress urinary incontinence.

Fig. 4 – Forest plots of comparisons after retropubic tape and transobturator tape. (a)
Continence rate according to any definition of cure; (b) objective continence rate; (c)
subjective continence rate (nonvalidated questionnaire); (d) bladder or vaginal perforation;
(e) hematoma; (f) vaginal erosion; (g) urinary tract
infection; (h) storage lower urinary tract symptoms (LUTS); (i) voiding LUTS; (j) need of
clean intermittent catheterization or recatheterization; (k) reoperation rate.



# B) objective continence rate

Mid-urethral tapes in SUI Review: 06 Retropubic Vs. transobturator midurethral tapes 02 Objective cure rate Comparison: Outcome: OR (fixed) 95% CI Study or sub-category Weight % 01 TVT vs in-out transobturator tapes 1.14 [0.32, 4.05] 1.00 [0.35, 2.87] 0.74 [0.30, 1.84] 0.02 [0.00, 0.37] 0.92 [0.32, 2.09] 0.92 [0.37, 2.26] 1.08 [0.38, 3.03] 1.20 [0.36, 3.98] 2.13 [0.38, 12.06] 0.84 [0.40, 1.78] 1.52 [0.41, 5.60] 1.00 [0.27, 3.66] 0.79 [0.47, 1.31] 1.12 [0.55, 2.26] 0.52 [0.23, 1.16] 0.80 [0.63, 1.01] Liapis 2006 Lee 2007 Meschia 2007 Araco 2008 Karateke 2009 5/43 8/60 12/110 17/100 11/83 1.36 2.10 3.30 5.48 6/46 8/60 9/108 0/108 9/81 10/78 10/35 7/77 4/65 14/141 2.93 Karateke 2009 Wang W 2009 Angioli 2010 Chen 2010 Deffieux 2010 Krofta 2010 12/87 3.00 10/37 5/65 2/67 17/147 2.11 1.49 0.56 4.55 1.14 1.38 10.05 4.50 5.02 48.99 Teo 2011 8/41 7/65 4/29 Teo 2011 Scheiner 2012 Aigmuller 2014 Laurikainen 2014 Zhang 2016 Subtotal (95% CI) 4/37 37/233 17/123 20/70 1291 Test for heterogeneity:  $Chi^2 = 11.88$ , df = 14 (P = 0.62),  $I^2 = 0\%$ Test for overall effect: Z = 1.90 (P = 0.06)02 TVT vs out-in transobturator tapes Enzelsberger 2005 Riva 2006 0.82 [0.31, 2.16] 0.98 [0.32, 2.98] 1.89 [0.66, 5.38] 0.57 [0.19, 1.68] 1.35 [0.57, 3.19] 0.39 [0.19, 0.78] 1.03 [0.28, 3.71] 0.82 [0.24, 2.82] 1.25 [0.30, 5.16] 0.70 [0.23, 2.14] 2.04 [0.84, 4.91] 0.34 [0.11, 1.04] 0.85 [0.64, 1.13] 11/56 2.73 7/65 6/77 9/71 10/58 36/75 4/45 6/70 1.91 1.60 2.66 2.77 7.87 1.39 1.69 1.07 2.23 2.18 3.42 31.51 7/66 7/66 11/80 6/79 18/82 19/72 7/77 5/70 Andonian 2007 Andonian 2007 Barber 2008 Barry 2008 Schierlitz 2008 Chen 2010 Wang F 2010 Scheiner 2012 Wadie 2013 Ross 2015 Costantin 2016 Suktotal (95% C 7/65 7/36 18/74 5/40 3/34 9/35 9/66 14/47 Outbotal (c...
Total events: 119 (c...
Test for heterogeneity: ChirTest for overall effect: Z = 1.14 (P = c...

03 Other retropubic vs transobturator tapes
Kim 2005 4/22
1/9
57/253
7/34
318
"\*\*ansobturator\* Subtotal (95% CI) 795 699 Subtructing (95% c)) Total events: 119 (Retropublic tape), 124 (Transobturator tape) Test for heterogeneity:  $Chi^2 = 15.71$ , df = 11 (P = 0.15),  $I^2 = 30.0\%$ Test for overall effect: Z = 1.14 (P = 0.25) 1.02 0.52 16.81 1.15 19.50 0.94 [0.20, 4.39] 0.67 [0.06, 7.48] 0.76 [0.51, 1.13] 1.66 [0.47, 5.83] 0.82 [0.57, 1.18] 4/21 3/19 73/263 5/37 340 Total (95% CI) 2466 Total events: 344 (Retropublic tape), 390 (Transobturator tape) Test for heterogeneity: Chiř = 28.82, df = 30 (P = 0.53), P = 0% Test for overall effect: Z = 2.45 (P = 0.01) 2330 100.00 0.82 [0.70, 0.96]

0.1 0.2 0.5 1 2 5 10
Favours retropubic Favours transobturat

# C) subjective continence rate

Review: Comparison: Outcome:

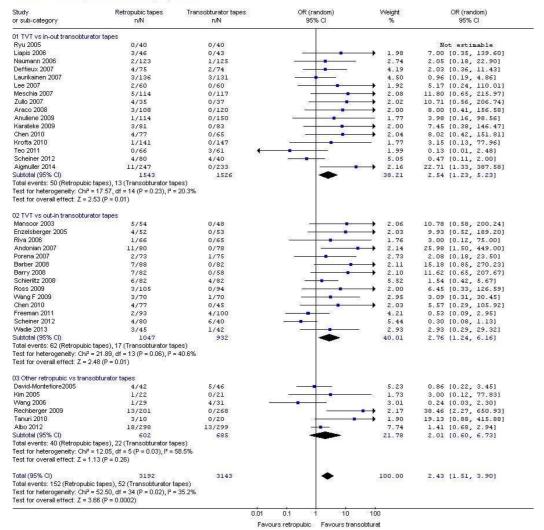
Mid-urethral tapes in SUI 06 Retropublic Vs. transoluturator midurethral tapes 03 Subjective cure rate

Study or sub-category	Retropubic tape n/N	Transobturator tape n/N	OR (fixed) 95% Cl	Weight %	OR (fixed) 95% CI
01 TVT vs in-out transobturator tape:		204,44345		~	900200000
Ryu 2005	3/40	0/40	88	0.16	7.56 [0.38, 151.28]
Liapis 2006	12/46	10/43	22	2.65	1.16 [0.44, 3.06]
Naumann 2006	16/123	16/125		4.79	1.02 [0.48, 2.14]
Meschia 2007	9/108	14/110		4.41	0.62 [0.26, 1.51]
Zhu 2007	2/28	2/27		0.66	0.96 [0.13, 7.36]
Angioli 2010	14/35	14/37	St. 10 42	2.83	1.10 [0.42, 2.83]
Krofta 2010	30/141	35/147		9.35	0.86 [0.50, 1.50]
Teo 2011	6/41	3/29		1.04	1.49 [0.34, 6.50]
Scheiner 2012	8/65	8/37	2 2 2 T	3.10	0.51 [0.17, 1.49]
Laurikainen 2014	21/136	19/132	Pi-	5.65	1.09 [0.55, 2.13]
Zhang 2016	18/70	26/70		6.70	0.59 [0.28, 1.21]
Subtotal (95% CI)	833	797	-	41.33	0.89 [0.69, 1.16]
Total events: 139 (Retropubic tape),	147 (Transobturator t	ape)			Company Samuel of Productive at
Test for heterogeneity: Chi <sup>2</sup> = 6.33, d					
Test for overall effect: Z = 0.85 (P = 0					
D2 TVT vs out-in transobturator tapes	3				
Riva 2006	4/66	6/65	2 22	1.97	0.63 [0.17, 2.36]
Barber 2008	35/85	29/77	-	6.21	1.16 [0.62, 2.18]
Schierlitz 2008	13/72	19/75	23	5.29	0.65 [0.29, 1.44]
El-Hefnawy 2010	0/19	2/21		- 0.80	0.20 [0.01, 4.44]
Wang F 2010	7/70	6/70	*I N	1.87	1.19 [0.38, 3.72]
Freeman 2011	29/84	36/95		7.67	0.86 [0.47, 1.59]
Scheiner 2012	8/65	6/34		2.40	0.65 [0.21, 2.07]
Costantini 2016	10/40	19/47		4.54	0.49 [0.20, 1.24]
Subtotal (95% CI)	501	484	-	30.75	0.80 [0.59, 1.10]
Total events: 106 (Retropubic tape),	123 (Transobturator t	ape)	833		British British State Consumer.
Test for heterogeneity: Chi² = 4.17, d					
Test for overall effect: Z = 1.38 (P = 0					
03 Other retropubic vs transobturator	rtapes				
Darai 2007	5/42	6/46	-	1.75	0.90 [0.25, 3.20]
Tanuri 2010	1/9	2/19		0.40	1.06 [0.08, 13.52]
Albo 2012	112/253	136/263	1	25.77	0.74 [0.52, 1.05]
Subtotal (95% CI)	304	328	•	27.92	0.76 [0.54, 1.05]
Total events: 118 (Retropubic tape),	144 (Transobturator t	ape)	NES		.88
Test for heterogeneity: Chi² = 0.15, d					
Test for overall effect: $Z = 1.65$ (P = 0	0.10)				
Fotal (95% CI)	1638	1609	•	100.00	0.83 [0.70, 0.98]
Total events: 363 (Retropubic tape),	114 (Transobturator t	ape)			
Test for heterogeneity: Chi <sup>2</sup> = 11.17,					
Test for overall effect: Z = 2.17 (P = 0		25566			
	19			4 4	
		0.	1 0.2 0.5 1 2	5 10	

# D) Intraoperative bladder or vaginal perforation

Review: Mid-urethral tapes in SUI

Comparison: 06 Retropublic Vs. transobturator midurethral tapes Outcome: 04 Complication rate - bladder/vaginal perforation



# E) hematoma

Review: Mild-urethral tapes in SUI
Comparison: 06 Retropublic Vs. transobturator midurethral tapes
Outcome: 05 Complication rate - haematoma

01 TVT vs in-out transobturetor tapes Ryu 2005	Study or sub-category	Retropubic tapes n/N	Transobturator tapes n/N	OR (fixed) 95% CI	Weight %	OR (fixed) 95% CI
Ryu 2005	01 TVT vs in-out transobturato	tapes	27,636		24	W00740 000 W00
Laurkainer 2007 1/196 0/191 3.52 2.91 [0.12, 72.11] Zullo 2007 0/35 0/37			0/40			Not estimable
Zullo 2007	Liapis 2006	0/46	0/43			Not estimable
Zullo 2007	Laurikainen 2007	1/136	0/131		3.52	2.91 [0.12. 72.11]
Araco 2008 6/108 0/120 3.12 15.28 [0.85, 274, 57] Arablene 2009 1/114 0/150 2.99 3.98 [0.16, 98.56] Karyateke 2009 4/91 2/83 13.14 2.10 [0.37, 11.82] Karyateke 2009 4/91 2/83 13.14 2.10 [0.37, 11.82] Wang W 2009 2/154 2/146 14.18 0.95 [0.13, 6.81] Chen 2010 1/77 0/65 3.3.72 2.57 [0.10, 64.15] Krotha 2010 1/141 0/147 3.3.99 3.15 [0.13, 7.96] Zhang 2016 1/70 0/70 3.4.2 3.09 3.15 [0.12, 7.96] Zhang 2016 1/70 0/70 3.4.2 3.04 [0.12, 75.99] Zhothal (95% Cf) 1076 1076 52.00 2.86 [1.24, 6.58]  First for overall effect Z = 2.47 (P = 0.01)  21 TVT vs out-in-transobturator tapes) Kest for overall effect Z = 2.47 (P = 0.01)  22 TVT vs out-in-transobturator 1098 1/73 0/75 3.38 3.12 [0.13, 7.794] Energy 2005 3/52 0/65 3 3.24 7.57 [0.38, 150.19] Energy 2006 1/62 0/85 4.00 1/73 0/75 3.38 3.12 [0.13, 7.794] Energy 2007 1/73 0/75 3.38 3.12 [0.13, 7.794] Energy 2008 1/82 0/88 4.02 2.15 [0.09, 53.80] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Energy 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Scheiner 2009 1/74 0/38 3.31 1.66 [0.56, 4.93]  Scheiner 2009 1/74 0/38 3.31 1.66 [0.56, 4.93]  Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Scheiner 2009 1/74 0/38 1.60 1.60 1.60 1.60 1.60 1.60 1.60 1.60						
Aruliene 2009				10 V	3.12	
Claracter 2009   4/81   2/83   13.14   2.10   (0.37, 11.82)	Anuliene 2009					
Scheiner 2009		000000000000000000000000000000000000000	E. S.	190		
Wang W 2009   2/154   2/146   14.18   0.95 [0.13 , 6.81]				10		
Chen 2010				** ** <u>********************************</u>		
Architect   1/141						
Theng 2016						
Subtotal (95% C) 1076 1070 52.00 2.86 [1.24, 6.58] old events: 18 (Retropubic tapes), 4 (Transobturator tapes) est for heterogeneity. Chi² = 2.80, df = 8 (P = 0.95), P = 0% est for overall effect: Z = 2.47 (P = 0.01) 102 TVT vs out-in transobturator tapes Mansoor 2003 0/54 0/48 Not est imable Encels berger 2005 3/52 0/53 3.24 7.57 [0.38, 150.19] Not est imable Encels berger 2005 0/66 0/65 Not est imable Encels berger 2007 0/80 2/77 17.71 0.19 [0.01, 3.97] Porena 2007 1/73 0/75 3.38 3.12 [0.13, 77.94] Barry 2008 1/82 0/58 4.02 2.15 [0.09, 53.80] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Chen 2010 1/77 0/45 4.32 1.78 [0.07, 44.73] Subtotal (95% Cl) 58 4.99 37.18 1.66 [0.56, 4.93] 1.6						
roted events: 18 (Retropublic tapes), 4 (Transobturator tapes) rest for heterogeneity: Chi² = 2.80, df = 8 (P = 0.95), F = 0% rest for overall effect: Z = 2.47 (P = 0.01)  12 TVT vs out-in transobturator tapes Mansoor 2003						
Test for heterogeneity, Chi" = 2.90, df = 8 (P = 0.95), P = 0% [Fest for overall effect: Z = 2.47 (P = 0.01)]  2 TVT vs out-in transobturator tapes  Mansoor 2003					02.00	2.00 (1.24, 0.00)
Test for overall effect: Z = 2.47 (P = 0.01)  02 TVT vs out-in transobturator tapes  Mansoor 2003						
Mansoor 2003 0 0 54 0 0 68 0 0 0 68 0 0 0 68 0 0 0 0			,,,			
Mansoor 2003 0 0 54 0 0 68 0 0 0 68 0 0 0 68 0 0 0 0	02 TVT vs out-in transobturato	tapes				
Enzelsberger 2005 3/52 0/53 3.24 7.57 [0.38, 150.19] Riva 2006 0/66 0/65 Not estimable Andonian 2007 0/80 2/77 17.71 0.19 [0.01, 3.97] Porena 2007 1/73 0/75 3.38 3.12 [0.13, 77.94] Barry 2008 1/82 0/58 4.02 2.15 [0.09, 53.80] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Chen 2010 1/77 0/45 4.32 1.78 [0.07, 44.73] Subtotal (95% CI) 58 459 37.18 1.66 [0.56, 4.93] Fest for heterogeneity: Chil* = 3.13, df = 5 (P = 0.68), l* = 0% Fest for overall effect: Z = 0.92 (P = 0.36) Subtotal (95% CI) 272 184 10.82 4.67 [0.79, 27.61] Fest for heterogeneity: Chil* = 0.06, df = 2 (P = 0.97), l* = 0% Fest for heterogeneity: Chil* = 0.08, df = 2 (P = 0.97), l* = 0% Fest for heterogeneity: Chil* = 0.09, df = 2 (P = 0.97), l* = 0% Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99, l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09), l* = 0.99 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09, ff = 0.09 Fest for heterogeneity: Chil* = 0.09 Fest for heterogeneity: Chi			0/48			Not estimable
Riva 2006				-	3.24	
Andonian 2007 0/80 2/77 Poreina 2007 1/73 0/75 3.38 3.12 [0.13, 77.94] Poreina 2007 1/73 0/75 3.38 3.12 [0.13, 77.94] Poreina 2007 1/74 0/75 4.09 4.00 2.15 [0.09, 53.80] Scheiner 2009 1/74 0/38 4.51 1.57 [0.06, 39.50] Chen 2010 1/77 0/45 4.51 1.57 [0.06, 39.50] Subtotal (95% CI) 558 459 37.18 1.66 [0.56, 4.93] Vest for pretropubic tapes), 2 (Transobturator tapes) Vest for overall effect: Z = 0.92 (P = 0.36)  30 Chief retropubic vs transobturator tapes  Bavid-Montefiore 2005 2/42 0/46 3.15 5.74 [0.27, 123.10] Wang 2006 1/29 0/31 3.22 3.32 [0.13, 84.70] Subtotal (95% CI) 3.15 5.74 [0.27, 123.10] Wang 2006 4/201 0/107 3.44 4.6 4.90 [0.26, 91.85] Subtotal (95% CI) 5.75 6.75 6.75 6.75 6.75 6.75 6.75 6.75						
Porena 2007					17 71	
Bearry 2008				100		
Scheiner 2009						
Chen 2010				50 <sup></sup>		
Subtotal (95% C) 558 459 37.18 1.66 [0.56, 4.93] oftal events: 7 (Retropubic tapes), 2 (Transobturator tapes) est for heterogeneity. Chi² = 3.13, df = 5 (P = 0.68), P = 0% est for overall effect: Z = 0.92 (P = 0.36)  33 Other retropubic vs transobturator tapes  David-Montefiore2005 2/42 0/46 3.15 5.74 [0.27, 123.10] when 2006 1/29 0/31 3.22 3.32 [0.13, 84.70] est for overall effect: Z = 0.92 (P = 0.95), 0 (Transobturator tapes) est for heterogeneity. Chi² = 0.06, df = 2 (P = 0.97), P = 0% est for overall effect: Z = 1.70 (P = 0.09)  Total (95% CI) 1906 1713 100.00 2.61 [1.41, 4.82] est for heterogeneity. Chi² = 6.67, df = 17 (P = 0.99), P = 0% est for heterogeneity. Chi² = 6.67, df = 17 (P = 0.99), P = 0% est for heterogeneity. Chi² = 6.67, df = 17 (P = 0.99), P = 0%	Chen 2010			77		
ordal events: 7 (Retropubic tapes), 2 (Transobturator tapes) est for heterogenethy; Chi² = 3.13, df = 5 (P = 0.68), P = 0.88  20 ordal events: 7 (Retropubic tapes), 6 (Transobturator tapes)  213 Other retropubic vs transobturator tapes  22 d2 0/46 3.15 5.74 [0.27, 123.10]  23 3.22 3.32 [0.13, 84.70]  24 4.64 4.90 [0.26, 91.85]  25 20 184 10.82 4.67 [0.79, 27.61]  25 21 20 184 10.82 4.67 [0.79, 27.61]  26 21 27 2 184 10.82 4.67 [0.79, 27.61]  27 2 184 10.82 4.67 [0.79, 27.61]  28 21 28 29 29 29 29 29 29 29 29 29 29 29 29 29						
David-Monteflore2005	Fest for heterogeneity: Chi² = 3	.13, df = 5 (P = 0.68), l2 = 0		355		
David-Monteflore2005	3 Other retropubic vs transob	turator tapes				
Wang 2006			0/46	5 <u>0 / / / / / / / / / / / / / / / / / / /</u>	3.15	5.74 [0.27, 123, 10]
Rechberger 2009 4/201 0/107 4.46 4.90 [0.26, 91.85] Subtotal (95% CI) 272 184 10.82 4.67 [0.79, 27.61] oftal events: 7 (Retropubic tapes), 0 (Transobturator tapes) Test for heterogenety: Chi² = 0.06, df = 2 (P = 0.97), l² = 0% Total (95% CI) 1906 1713 100.00 2.61 [1.41, 4.82] Total events: 32 (Retropubic tapes), 6 (Transobturator tapes) Test for heterogenety: Chi² = 6.67, df = 17 (P = 0.99), l² = 0%				The state of the s		
Subtotal (95% C) 272 184 10.82 4.67 [0.79, 27.61] Intellements: 7 (Retropubic tapes), 0 (Transobturator tapes) Intellements: 7 (Retropubic tapes), 0 (Transobturator tapes) Intellements: 7 (Retropubic tapes), 0 (Transobturator tapes) Intellements: 2 = 1.70 (P = 0.09) Intellements: 2 = 1.70 (P = 0.09) Intellements: 2 (Retropubic tapes), 6 (Transobturator tapes) Intellements: 3 (Retropubic tapes), 6 (Transobturator tapes) Intellements: 2 (Retropubic tapes), 6 (Retropubic tapes						
Fotal events: 7 (Retropubic tapes), 0 (Transobturator tapes)  fest for heterogenety: Chi² = 0.06, df = 2 (P = 0.97), l² = 0%  fest for overall effect: Z = 1.70 (P = 0.09)  fotal (95×C1)  fotal events: 32 (Retropubic tapes), 6 (Transobturator tapes)  fest for heterogenety: Chi² = 6.67, df = 17 (P = 0.99), l² = 0%						
Total events: 32 (Retropublic tapes), 6 (Transobturator tapes)  Test for heterogeneity: Chi² = 6.67, df = 17 (P = 0.99), i² = 0%	Test for heterogeneity: Chi² = 0	.06, df = $2 (P = 0.97)$ , $I^2 = 0$				Applications of the State Control of the Control of
Total events: 32 (Retropubic tapes), 6 (Transobturator tapes) Test for heterogeneity: Chi² = 6.67, df = 17 (P = 0.99), i² = 0%	Total (95% CD	1906	1713		100.00	2 61 [1 41 4 821
Test for heterogeneity: Chi² = 6.67, df = 17 (P = 0.99), l² = 0%					230.00	2.02 (2.11, 4.02)
Fest for overall effect: Z = 3.06 (P = 0.002)	Test for heterogeneity: Chi² = 6	.67, df = 17 (P = 0.99), l2 =				

# F) vaginal erosion

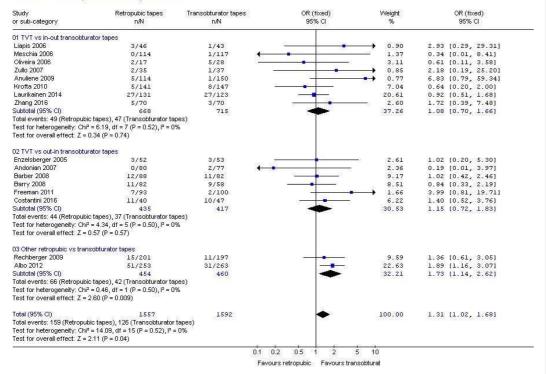
Mid-urethral tapes in SUI 06 Retropubic Vs. transobturator midurethral tapes 06 Complication rate - vaginal erosion Review: Comparison: Outcome:

Study or sub-category	Retropubic tapes n/N	Transobturator tapes n/N	OR (fixed) 95% Cl	Weight %	OR (fixed) 95% Cl
01 TVT vs in-out transobturate	or tapes	03.505			7000000 FO.
Ryu 2005	0/40	0/40			Not estimable
Liapis 2006	1/46	0/43	* * * * * * * * * * * * * * * * * * *	0.77	2.87 [0.11, 72.32]
Naumann 2006	3/123	7/125		10.48	0.42 [0.11, 1.67]
Oliveira 2006	1/17	1/28		- 1.10	1.69 [0.10, 28.88]
Meschia 2007	0/114	1/117		2.28	0.34 [0.01, 8.41]
Araco 2008	1/108	3/100		4.77	0.30 [0.03, 2.95]
Rinne 2008	0/134	1/131		2.34	0.32 [0.01, 8.01]
Karateke 2009	4/81	2/83	2 ·	2.91	2.10 [0.37, 11.82]
Wang W 2009	3/154	3/146	2 <u>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 </u>	4.67	0.95 [0.19, 4.77]
Angioli 2010	2/35	1/37	12	- 1.42	2.18 [0.19, 25.20]
Krofta 2010	2/141	2/147	St 18	2.99	1.04 [0.14, 7.51]
Teo 2011	3/57	1/50	-	- 1.56	2.72 [0.27, 27.04]
Scheiner 2012	1/80	0/40	5 <u>6 22 11 22</u>	1.01	1.53 [0.06, 38.36]
Zhang 2016	2/70	5/70	N S	7.51	0.38 [0.07, 2.04]
Subtotal (95% CI)	1200	1157		43.81	0.84 [0.49, 1.45]
Fotal events: 23 (Retropublic to Fest for heterogeneity: Chi² = 1 Fest for overall effect: Z = 0.6	6.90, df = 12 (P = 0.86), l <sup>2</sup> =				
02 TVT vs out-in transobturate	or tapes				
Kim 2004	0/32	1/34 —	<u> </u>	2.22	0.34 [0.01, 8.74]
Enzelsberger 2005	1/52	1/53	E-10	1.50	1.02 [0.06, 16.74]
Riva 2006	1/66	2/65	-	3.07	0.48 [0.04, 5.48]
Andonian 2007	0/80	2/77		3.92	0.19 [0.01, 3.97]
Porena 2007	0/73	3/75		5.31	0.14 [0.01, 2.78]
Barber 2008	5/88	1/82	12- E	1.51	4.88 [0.56, 42.68]
Barry 2008	1/82	3/58 —		5.37	0.23 [0.02, 2.23]
Wang F 2009	1/70	2/70		3.05	0.49 [0.04, 5.56]
Scheiner 2012	1/80	4/40		8.15	0.11 [0.01, 1.06]
Wadie 2013	0/45	1/35	(1993) W 199	2.58	0.25 [0.01, 6.40]
Ross 2015	2/87	7/78	S	11.16	0.24 [0.05, 1.19]
Subtotal (95% CI)	755	667		47.82	0.41 [0.22, 0.78]
Fotal events: 12 (Retropubic to Fest for heterogeneity: Chi² = Fest for overall effect: Z = 2.7	8.27, df = 10 (P = 0.60), l <sup>2</sup> =				
3 Other retropubic vs transol	bturator tapes				
Na 2005	0/65	0/65			Not estimable
Wang 2006	1/29	0/31		0.71	3.32 [0.13, 84.70]
Rechberger 2009	4/201	5/197	23	7.66	0.78 [0.21, 2.95]
Subtotal (95% CI)	295	293		8.37	1.00 [0.30, 3.28]
lotal events: 5 (Retropubic tag	oes), 5 (Transobturator tape	s)	T		
「est for heterogeneity: Chi² = 「est for overall effect: Z = 0.0		%			
Fotal (95% CI)	2250	2117	•	100.00	0.65 [0.44, 0.95]
l'otal èvents: 40 (Retropubic ta	apes), 59 (Transobturator ta		5070		process tensorstate analysis
Fest for heterogeneity: Chi² = Fest for overall effect: Z = 2.2		= 0%			
ALCO 1600 F. R. S.	September 1 m File Frank		0.1 1 10	- 39	

# G) urinary tract infection

Review

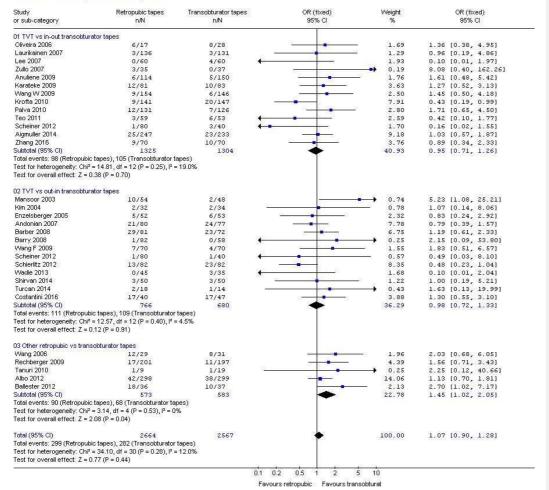
Mid-urethral tapes in SUI 06 Retropubic Vs. transoluturator midurethral tapes 07 Compliaction rate - urinary tract infection Comparison: Outcome:



# H) storage lower urinary tract symptoms (LUTS)

Review

Mid-urethral tapes in SUI 06 Retropublic Vs. transobturator midurethral tapes 08 Complication rate - storage LUTS Comparison: Outcome:



# I) voiding LUTS

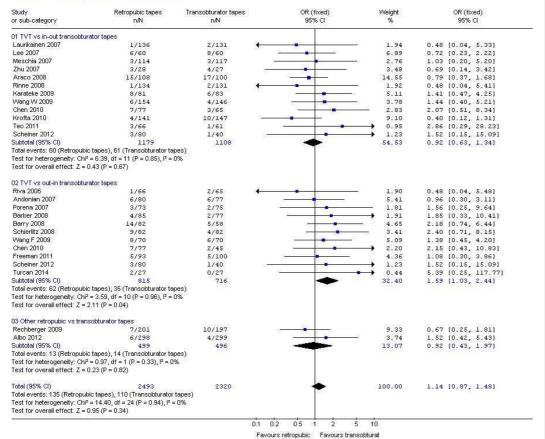
Review: Mild-urethral tapes in SUI
Comparison: 06 Retropublic Vs. transobturator midurethral tapes
09 Complication rate - voiding LUTS

Study or sub-category	Retropubic tapes n/N	Transobturator tapes n/N	OR (fixed) 95% CI	Weight %	OR (fixed) 95% CI
01 TVT vs in-out transobtura	ator tapes				
Meschia 2007	3/114	5/117		8.31	0.61 [0.14, 2.59]
Palva 2010	0/136	1/126		2.68	0.31 [0.01, 7.59]
Scheiner 2012	12/65	5/37		8.99	1.45 [0.47, 4.49]
Zhang 2016	15/70	11/70	2	14.95	1.46 [0.62, 3.46]
Subtotal (95% CI)	385	350	-	34.94	1.17 [0.64, 2.11]
Total events: 30 (Retropubio	tapes), 22 (Transobturator ta	pes)	10000000		Spring to the first Published and the Spring
Test for heterogeneity: Chi <sup>2</sup>	= 1.85, df = 3 (P = 0.60), l <sup>2</sup> = 0	%			
Test for overall effect: $Z = 0$					
02 TVT vs out-in transobtur	ator tapes				
Mansoor 2003	5/54	1/48	E-	1.66	4.80 [0.54, 42.60]
Enzelsberger 2005	4/52	3/53		4.75	1.39 [0.30, 6.53]
Riva 2006	1/66	0/65 -	a- 19-a-1	→ 0.85	3.00 [0.12, 75.00]
Freeman 2011	5/93	5/100	72	7.89	1.08 [0.30, 3.86]
Scheiner 2012	12/65	4/34		7.41	1.70 [0.50, 5.73]
Schierlitz 2012	3/72	2/75	200	3,25	1.59 [0.26, 9.79]
Costantini 2016	8/40	8/47		10.18	1.22 [0.41, 3.61]
Subtotal (95% CI)	442	422		35.99	1.55 [0.89, 2.69]
	tapes), 23 (Transobturator ta				2.00 (0.00, 2.00)
	= 1.73, df = 6 (P = 0.94), l <sup>2</sup> = 0				
Test for overall effect: Z = 1		~			
03 Other retropubic vs trans	obturator tanes				
Kim 2005	6/22	6/21		7.73	0.94 [0.25, 3.56]
Na 2005	5/65	4/65		- 6.39	1.27 [0.33, 4.96]
Wang 2006	16/29	7/31	- CO-	5.25	4.22 [1.38, 12.88]
Albo 2012	19/298	6/299		9.70	3.33 [1.31, 8.45]
Subtotal (95% CI)	414	416		29.07	2.40 [1.37, 4.19]
	tapes), 23 (Transobturator ta			62.00	2.40 (1.07, 4.15)
	= 4.20, df = 3 (P = 0.24), l <sup>2</sup> = 2				
Test for overall effect: Z = 3					
rest for overall effect. L = 3	.00 (1 - 0.002)				
Total (95% CI)	1241	1188	•	100.00	1.66 [1.20, 2.30]
Total events: 114 (Retropub	c tapes), 68 (Transobturator t	apes)	340. <del>2</del> 400		
Test for heterogeneity: Chi <sup>2</sup>	= 10.57, df = 14 (P = 0.72), l2 =	= 0%			
Test for overall effect: $Z = 3$	.07 (P = 0.002)				

#### J) need of clean intermittent catheterization or recatheterization

Review

Mid-urethral tapes in SUI 06 Retropublic Vs. transoluturator midurethral tapes 10 Complication rate - CIC/recatheterization Comparison: Outcome:



# K) reoperation rate

Mid-urethral tapes in SUI 06 Retropubic Vs. transobturator midurethral tapes 11 Reoperation rate

Review: Comparison: Outcome:

Study or sub-category	Retropubic tapes n/N	Transobturator tapes n/N	OR (random) 95% CI	Weight %	OR (random) 95% Cl
01 TVT vs in-out transobturator to	apes	34 9390		~	#00/00 00 PM
Liapis 2006	1/46	0/43	V V	2.52	2.87 [0.11, 72.32]
Oliveira 2006	1/17	0/28	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	2.48	5.18 [0.20, 134.65]
Araco 2008	19/108	17/100	-	14.89	1.04 [0.51, 2.14]
Palva 2010	2/131	1/126	-	4.10	1.94 [0.17, 21.64]
Scheiner 2012	5/80	1/40		4.79	2.60 [0.29, 23.04]
Aigmuller 2014	4/247	1/233	77	- 4.74	3.82 [0.42, 34.42]
Subtotal (95% CI)	629	570	-	33.51	1.41 [0.77, 2.58]
Total events: 32 (Retropubic tape Test for heterogeneity: Chi² = 2.6 Test for overall effect: Z = 1.10 (I	6, df = 5 (P = 0.75), l <sup>2</sup> = 0		354		
02 TVT vs out-in transobturator to	apes				
Mansoor 2003	5/54	1/48	\$0 12 E	4.79	4.80 [0.54, 42.60]
Enzelsberger 2005	1/52	1/53	St	3.21	1.02 [0.06, 16.74]
Riva 2006	0/66	2/65	-	2.77	0.19 [0.01, 4.06]
Andonian 2007	0/80	5/77 ←		3.01	0.08 [0.00, 1.51]
Barber 2008	10/88	1/77	-	5.15	9.74 [1.22, 77.97]
Barry 2008	3/81	1/58		4.45	2.19 [0.22, 21.62]
Wang F 2009	0/70	1/70 -		2.53	0.33 [0.01, 8.21]
Scheiner 2012	5/80	2/40		6.91	1.27 [0.23, 6.83]
Schierlitz 2012	1/72	15/75 ←		5.25	0.06 [0.01, 0.44]
Ross 2015	9/87	5/78	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10.73	1.68 [0.54, 5.26]
Costantini 2016	3/40	7/47	-	8.51	0.46 [0.11, 1.93]
Subtotal (95% CI)	770	688		57.31	0.84 [0.34, 2.10]
Total events: 37 (Retropubic tape Test for heterogeneity: Chi² = 21. Test for overall effect: Z = 0.36 (I	26, df = 10 (P = 0.02), l <sup>2</sup> =				
33 Other retropubic vs transobtu	rator tanes				
Rechberger 2009	4/201	5/197	98 81	9.18	0.78 [0.21, 2.95]
Subtotal (95% CI)	201	197	2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	9.18	0.78 [0.21, 2.95]
Total events: 4 (Retropubic tapes Test for heterogeneity: not applic Test for overall effect: Z = 0.37 (I	), 5 (Transobturator tape able		6500 0		
Total (95% CI)	1600	1455	-	100.00	1.13 [0.65, 1.95]
Total events: 73 (Retropubic tape Test for heterogeneity: Chi² = 25. Test for overall effect: Z = 0.43 (I	00, df = 17 (P = 0.09), l <sup>2</sup> =		VA		Accompany Secretary of Control (Control
	: 35	0.01	0.1 1 10	100	
		0.01	0.1 1 10	100	

CI = confidence interval; CIC = clean intermittent catheterization; OR = odds ratio; SD = standard deviation; SUI = stress urinary incontinence; LUTS: lower urinary tract symptoms

Fig. 5 – Forest plots of comparisons after different transobturator tapes: (a) objective continence rate; (b) subjective continence rate; (c) vaginal perforation; (d) vaginal erosion; (e) urinary tract infection; (f) storage lower urinary tract symptoms; (g) voiding lower urinary tract symptoms; (h) need of clean intermittent catheterization or recatheterization.

# A) objective continence rate

Review: Mid-urethral tapes in SUI
Comparison: 08 Transobturator tapes: in-out vs out-in
Outcome: 01 Objective cure rate

Study or sub-category	In-out n/N	Out-in n/N		OR (fixed) 95% CI	Weight %	OR (fixed) 95% CI
Houwert 2007	4/24	2/22			6.34	2.00 [0.33, 12.18]
But 2008	1/60	1/60	4		3.59	1.00 [0.06, 16.37]
Liapis 2008	8/61	5/53			- 16.96	1.45 [0.44, 4.73]
Abdel-Fattah 2010	7/121	13/109	19		47.01	0.45 [0.17, 1.18]
Chen 2010	5/65	4/45	10		15.92	0.85 [0.22, 3.37]
Scheiner 2012	4/37	3/34			10.17	1.25 [0.26, 6.05]
Total (95% CI)	368	323			100.00	0.89 [0.51, 1.53]
Total events: 29 (In-out), 28 (Ou	t-in)			1000 40		18
Test for heterogeneity: Chi <sup>2</sup> = 3.	52, $df = 5 (P = 0.62), P = 0.62$	%				
Test for overall effect: $Z = 0.44$	(P = 0.66)					
	S MARKE		0.1 0.2	0.5 1 2	5 10	
			Fav	ours In-out Favours Ou	t in	

# B) subjective continence rate

Review: Mid-urethral tapes in SUI
Comparison: 08 Transobturator tapes: in-out vs out-in
Outcome: 02 Subjective cure rate

Study or sub-category	In-out n/N	Out-in n/N				R (fixed 95% CI			Weight %		OR (fixe 95% C	
Liapis 2008	12/61	12/53							26.15	0.84	[0.34,	2 061
Abdel-Fattah 2012	33/126	31/112			70		200		61.42		[0.52,	
Scheiner 2012	8/37	6/34			87	7-		-5%	12.43		[0.40,	
Total (95% CI)	224	199			-4	-			100.00	0.95	[0.61,	1.48]
Total events: 53 (In-out), 49 (	Out-in)											
Test for heterogeneity: Chi2 =	0.34, df = 2 (P = 0.84), l2 = 0%											
Test for overall effect: $Z = 0.2$	23 (P = 0.82)											
	<u> </u>		0.1	0.2	0.5	048	2	5	10			
				Favor	urs In-ou	ut Fa	vours	Out-in				

# C) vaginal perforation

Review: Mid-urethral tapes in SUI
Comparison: 08 Transobturator tapes: in-out vs out-in
Outcome: 04 Complication rate: vaginal perforation

Study or sub-category	In-out n/N	Out-in n/N		OR (fix 95%		Weight %	OR (fixed) 95% Cl
But 2008	0/60	9/60	4	-		29.94	0.04 [0.00, 0.79]
Abdel-Fattah 2010	3/170	17/171				52.91	0.16 [0.05, 0.57]
Scheiner 2012	4/40	6/40		100		17.16	0.63 [0.16, 2.43]
Total (95% CI)	270	271		•		100.00	0.21 [0.09, 0.47]
Total events: 7 (In-out), 32 (Ou	rt-in)						
Test for heterogeneity: Chi <sup>2</sup> = 3	3.84, df = 2 (P = 0.15), l2 = 48	1.0%					
Test for overall effect: $Z = 3.70$	6 (P = 0.0002)			100			
	***		0.01	0.1 1	10	100	
			F	avours In-out	Favours Out-	-in	

# D) vaginal erosion

Review: Comparison: Outcome: Mid-urethral tapes in SUI 08 Transobturator tapes: in-out vs out-in 05 Complication rate: vaginal erosions

Study or sub-category	In-out n/N	Out-in n/N			R (fixed) 95% CI		Weight %		OR (fixed) 95% Cl
Houwert 2007	1/39	0/26			78		<b>4</b> .53	2.06 [	0.08, 52.65]
Abdel-Fattah 2012	3/170	7/171		-	2.6		54.00		0.11, 1.66]
Scheiner 2012	1/80	4/40	97				41.48	0.11 [	0.01, 1.06]
Total (95% CI)	289	237					100.00	0.37 [	0.13, 1.03]
Total events: 5 (In-out), 11 (Ou	rt-in)			A					
Test for heterogeneity: Chi <sup>2</sup> = :	2.19, df = $2 (P = 0.33)$ , $P = 8.8$	%							
Test for overall effect: $Z = 1.9$									
			0.01	0.1	11	10	100		
			F	avours In-c	out Fav	ours Out-i	n		

26

#### 27

# E) urinary tract infection

Review: Comparison: Outcome: Mid-urethral tapes in SUI 08 Transobturator tapes: in-out vs out-in 03 Complication rate - urinary tract infection

OR (fixed) 95% CI OR (fixed) 95% CI Study or sub-category But 2008 Liapis 2008 Abdel-Fattah 2012 5/60 2/53 1/112 2.20 [0.70, 6.88] 1.32 [0.21, 8.21] 2.71 [0.28, 26.41] 57.59 28.13 10/60 3/61 3/126 14.29  $\label{eq:continuous} \begin{array}{ll} Total~(95\%~Cf) & 2.47\\ Total~events:~15~(In-out),~8~(Out-in) & 2.47\\ Test~for~heterogeneity:~ChiP~=~0.29,~df~=~2~(P~=~0.86),~P~=~0\%\\ Test~for~overall~effect:~Z~=~1.56~(P~=~0.12) & 2.47\\ Test~for~overall~effect:~Z~=$ 225 100.00 2.02 [0.83, 4.91] 0.1 0.2 0.5 1 2

28

29

# F) storage lower urinary tract symptoms

Favours In-out Favours Out-in

Review: Comparison: Outcome: Mid-urethral tapes in SUI 08 Transobturator tapes: in-out vs out-in 06 Complication rate: storage LUTS

In-out n/N	Out-in n/N		OR (fixed 95% CI	D)	Weight %	OR (fixed) 95% Cl
8/61	6/53		-	- 10	85.78	1.18 [0.38, 3.66]
3/40	1/40				14.22	3.16 [0.31, 31.78]
101	93		1	HELD:	100.00	1.46 [0.54, 3.97]
-in)			17/15			
	6					
(P = 0.45)						
20000		0.1 0.2	0.5 1	2 5	10	
		Four	urala out. Ea	woure Out	in	
	n/N 8/61 3/40 101	n/N n/N  8/61 6/53 3/40 1/40  101 93  in) 57, df = 1 (P = 0.45), P = 0%	nN	n/N n/N 95% CI  8/61 6/53 3/40 1/40  101 93	n/N n/N 95% CI  8/61 6/53 3/40 1/40  101 93  -in) 57, df = 1 (P = 0.45), P = 0% (P = 0.45)	n.N

30 31

32

# G) voiding lower urinary tract symptoms

Review: Mid-urethral tapes in SUI
Comparison: 08 Transobturator tapes: in-out vs out-in
Outcome: 07 Complication rate: voiding LUTS

Study or sub-category	In-out n/N	Out-in n/N		OR (fix 95%		Weight %	OR (fixed) 95% CI
But 2008	5/60	3/60				16.29	1.73 [0.39, 7.58]
Abdel-Fattah 2010	9/171	10/170		20	O:	56.27	0.89 [0.35, 2.25]
Park 2012	1/39	1/35	4	-		6.08	0.89 [0.05, 14.86]
Scheiner 2012	5/37	4/34			1		1.17 [0.29, 4.78]
Total (95% CI)	307	299				100.00	1.09 [0.56, 2.10]
Total events: 20 (In-out), 18 (O				10/04/05			
Test for heterogeneity: Chi <sup>2</sup> = 0	$0.59$ , df = $3$ (P = $0.90$ ), $l^2$ = $0.90$	6					
Test for overall effect: $Z = 0.25$	5 (P = 0.81)						
			0.1 0.2	0.5 1	ż	5 10	
			Fave	ours In-out	Favours I	n-out	

H) need of clean intermittent catheterization or recatheterization.

# 

Review: Mid-urethral tapes in SUI
Comparison: 08 Transobturator tapes: in-out vs out-in
Outcome: 08 Complication rate: CIC/catheterization

Study or sub-category	In-out n/N	Out-in n/N		OR (fixed) 95% Cl	Weight %	OR (fixed) 95% Cl
Liapis 2008	3/61	2/53	61-		32.23	1.32 [0.21, 8.21]
Chen 2010	3/65	2/45	10/7		35.70	1.04 [0.17, 6.49]
Abdel-Fattah 2012	1/126	1/112	4		16.63	0.89 [0.05, 14.36]
Scheiner 2012	1/40	1/40	+		15.44	1.00 [0.06, 16.56]
Total (95% CI)	292	250			100.00	1.10 [0.37, 3.24]
Total events: 8 (In-out), 6 (Out-	-in)			31744111371137137137137137137		
Test for heterogeneity: Chi² = (	$0.07$ , df = $3 (P = 1.00)$ , $I^2 = 0\%$					
Test for overall effect: $Z = 0.1$	7 (P = 0.86)					

CI = confidence interval; CIC = clean intermittent catheterization; OR = odds ratio; SD = standard deviation; SUI = stress urinary incontinence; LUTS: lower urinary tract symptoms

Favours In-out Favours Out-in

# Table 1: Comparisons after retropubic and transobturator tapes . Meta-analysis of all the RCTs and sensitivity analyses for high quality RCTs

44														
Retropubic vs transobturator				All RCTs					High	quality RCTs	;			
tapes														
Continence rate														
	RCT	Participants	OR	95%- CI of	P value	Difference in	RCT	Participant	OR	95%- CI	P	Difference		
				OR		favor of		s		of OR	value	in favor of		
Any definition of continence	9	1374	1.16	0.89-1.51	0.27	None	3	355	0.96	0.42-2.17	0.92	None		
Objective continence rate	31	4796	0.82	0.70-0.96	0.02	RP-TVT	16	3079	0.76	0.63-0.92	0.006	RP-TVT		
Subjective continence rate	22	3247	0.83	0.70-0.98	0.03	<u>RP-TVT</u>	14	2361	0.85	0.7-1.03	0.77	None		
					Adverse e	vents					ı			
	RCT	Participants	OR	95%- CI	P value	Difference in	RCT	Participant	OR	95%- CI	P	Difference		
				of OR		favor of		s		of OR	value	in favor of		
Bladder/vaginal perforation	36	6335	2.5	1.87-3.36	< 0.0001	TO-TVT	15	2993	2.41	1.56–3.71	0.002	TO-TVT		
Hematoma	23	3619	2.61	1.41-4.82	0.002	TO-TVT	6	999	2.62	0.81-8.46	0.11	None		
Vaginal erosion	28	4367	0.65	0.45-0.95	0.03	RP-TVT	13	1405	0.56	0.32-0.96	0.03	RP-TVT		
Urinary tract infection	16	3149	1.31	1.02-1.68	0.04	TO-TVT	6	1302	1.28	0.93-1.78	0.13	None		
Storage LUTS	31	52341	1.07	0.9–1.28	0.44	None	12	2531	1.07	0.76–1.5	0.70	None		
Voiding LUTS	15	2429	1.66	1.2–2.3	0.002	TO-TVT	8	1038	1.59	0.85-2.97	0.15	None		
CIC/recatheterization	24	4749	1.14	0.87-1.48	0.34	None	13	1510	1.33	0.81-2.18	0.27	None		
	18	3126	1.13	0.65-1.95	0.66	None	8	778	1.33	0.46-3.87	0.6	None		