






Comparative outcomes of transobturator tape and tension-free vaginal tape procedures in mixed urinary incontinence: a retrospective cohort study

Miks üriner inkontinans cerrahi tedavisinde transobturator tape ve tension-free vaginal tape prosedürlerinin karşılaştırmalı sonuçları: Retrospektif kohort çalışması

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ABSTRACT

Aim: This study aimed to compare the outcomes of Transobturator Tape (TOT) and Tension-Free Vaginal Tape (TVT) procedures in the treatment of Mixed Urinary Incontinence (MUI), focusing on objective and subjective cure rates, postoperative complications, and quality of life improvements.

Materials and Methods: A retrospective cohort study was conducted at a tertiary hospital specializing in women's health and education between January 2014 and June 2018. Seventy patients diagnosed with MUI underwent either TOT (n=38) or TVT (n=32) procedures. Preoperative and postoperative data were collected, including demographics, urodynamic parameters, and validated quality of life questionnaires (UDI-6 and IIQ-7). Objective cure was defined as a negative cough stress test and no need for incontinence medication. Subjective cure was determined by UDI-6 scores. Statistical analysis was performed to evaluate outcomes and identify factors affecting surgical success.

Results: Both TOT and TVT procedures significantly improved quality of life, with no significant difference in objective cure rates (68.4% vs. 65.6%, p=0.804) or postoperative complications between the two groups. Urethral mobility was identified as a positive predictor of objective cure (OR 1.1, p=0.020), while detrusor overactivity negatively impacted surgical success (OR 1.1, p=0.031). Both procedures demonstrated similar efficacy in treating the stress and urge components of MUI.

Conclusions: TOT and TVT are equally effective and safe for the short-term treatment of MUI, with low complication rates. Urethral mobility and detrusor overactivity are important factors influencing surgical outcomes. Further large-scale, prospective studies are needed to confirm these findings and optimize patient selection for these procedures.

Keywords: Mixed urinary incontinence, quality of life scales, tension-free vaginal tape, transobturator tape

ÖZ

Amaç: Bu çalışmanın amacı, Miks Üriner İnkontinans (MÜİ) tedavisinde Transobturator Tape (TOT) ve Tension-Free Vaginal Tape (TVT) prosedürlerinin sonuçlarını karşılaştırmaktır. Çalışma, objektif ve subjektif kür oranları, postoperatif komplikasyonlar ve yaşam kalitesindeki iyileşmeleri değerlendirmeyi amaçlamaktadır.

Gereç ve Yöntemler: Ocak 2014 ile Haziran 2018 tarihleri arasında üçüncü basamak bir kadın sağlığı eğitim ve araştırma hastanesinde retrospektif kohort tasarımında gerçekleştirilmiştir. MÜİ tanısı konulan 70 hasta TOT (n=38) veya TVT (n=32) prosedürleri ile tedavi edilmiştir. Preoperatif ve postoperatif veriler toplanmış; demografik özellikler, ürodinamik parametreler ve yaşam kalitesi anketleri (UDI-6 ve IIQ-7) kullanılmıştır. Objektif kür, negatif öksürük stres testi ve inkontinans nedeni medikal tedavi ihtiyacı olmaması şeklinde tanımlanmıştır. Subjektif kür ise UDI-6 skorları ile belirlenmiştir. Cerrahi başarıyı değerlendirmek ve etkileyen faktörleri belirlemek için uygun istatistiksel analizler yapılmıştır.

Bulgular: TOT ve TVT prosedürlerinin her ikisi de yaşam kalitesini anlamlı derecede iyileştirmiştir. Her iki grup arasında objektif kür oranlarında (%68,4 vs. %65,6, p=0,804) veya postoperatif komplikasyonlarda anlamlı bir fark bulunmamıştır. Üretral mobilite, objektif kür için pozitif bir belirleyici olarak saptanmıştır (OR 1,1, p=0,020), buna karşın detrüsör aşırı aktivitesi cerrahi başarıyı olumsuz etkilemiştir (OR 1,1, p=0,031). Her iki prosedür de MÜİ'nin stres ve urgency bileşenlerinin tedavisinde benzer etkinlik göstermiştir.

Sonuç: TOT ve TVT, MÜİ'nin kısa dönem tedavisinde eşit derecede güvenli ve etkili olmakla birlikte düşük komplikasyon oranlarına sahiptir. Üretral mobilite ve detrüsör aşırı aktivitesi cerrahi sonuçları etkileyen önemli faktörlerdir. Bu bulguları doğrulamak ve bu prosedürler için hasta seçimini optimize etmek amacıyla daha geniş ölçekli, prospektif çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Miks üriner inkontinans, tension-free vaginal tape, transobturator tape, yaşam kalitesi ölçekleri

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INTRODUCTION

Mixed urinary incontinence (MUI) is a prevalent condition characterized by the involuntary leakage of urine, associated with both stress and urgency incontinence (1). This dual manifestation makes MUI a complex and challenging condition to manage, as it encompasses symptoms of both stress urinary incontinence (SUI) and urge urinary incontinence (UII). The burden of MUI significantly impacts the quality of life of affected women, leading to diminished quality of life, psychological distress, and reduced physical activity (2,3).

Surgical intervention, particularly mid-urethral sling (MUS) procedures, has become the cornerstone of treatment for women with MUI who do not respond adequately to conservative management (4). Among the MUS procedures, the Transobturator Tape (TOT) and Tension-Free Vaginal Tape (TVT) techniques are widely used. Both approaches aim to provide support to the urethra, thereby reducing or eliminating involuntary urine leakage (5). The TOT procedure, introduced by Delorme in 2001, involves the placement of a synthetic sling through the obturator foramen, whereas the TVT procedure, introduced by Ulmsten in 1996, involves the placement of the sling via a retropubic approach (6,7).

MUI involves both stress and urgency incontinence, reflecting mechanisms from the integral and hammock theories. The integral theory, emphasizes the pubourethral ligament, suburethral hammock, and pelvic floor muscles in urethral closure (8). Weakness in these can lead to inappropriate micturition reflexes and UII, while affecting suburethral support results in SUI. DeLancey's hammock theory focuses on the pubocervical fascia and its connection to the levator ani muscles (9). Weakened support, especially under increased intra-abdominal pressure, can cause urethral displacement and SUI. TOT and TVT procedures aim to restore urethral support by reinforcing these structures, addressing MUI causes.

Despite their widespread use, the relative effectiveness and safety of TOT and TVT in the management of MUI remain subjects of ongoing debate. Various studies have reported conflicting results regarding the comparative outcomes of these procedures, particularly in terms of objective and subjective cure rates, postoperative complications, and patient-reported quality of life (10). Furthermore, the influence of preoperative factors, such as urethral mobility and detrusor overactivity, on surgical outcomes has yet to be fully elucidated.

Given these uncertainties, the present study aims to compare the outcomes of TOT and TVT procedures in a cohort of patients

diagnosed with MUI. Specifically, we seek to evaluate the objective and subjective cure rates, postoperative complications, and quality of life outcomes associated with each procedure. Additionally, we aim to identify preoperative factors that may influence the success of these surgical interventions.

By providing a comprehensive comparison of TOT and TVT in the context of MUI, this study seeks to contribute to the existing body of knowledge and assist clinicians in making informed decisions regarding the optimal surgical approach for their patients.

MATERIALS AND METHODS

Study Design

Retrospective cohort study included patients who presented with involuntary urinary incontinence at the Urogynecology Clinic of a tertiary hospital specializing in women's health between January 2014 and June 2018, after obtaining ethical approval from the local Clinical Research Ethics Committee (Approval No: 50/2018, dated 26.09.2018). These patients underwent mid-urethral sling surgery, either TOT or TVT, and were diagnosed with MUI based on preoperative history, examination findings, and urodynamic confirmation.

Setting

The study was conducted at the Urogynecology Clinic of a tertiary hospital. Data were collected retrospectively from hospital archives covering patients treated between January 2014 and June 2018. All eligible patients meeting the inclusion criteria within the specified period were included in the study.

Participants

Patients diagnosed with MUI, confirmed through preoperative history, physical examination, and urodynamic studies. MUI-positive patients were defined as those with complaints of urine leakage during coughing or sneezing and urgency incontinence symptoms, positive cough stress test results on examination, and urodynamic evidence of detrusor overactivity during filling cystometry and a positive urodynamic stress test.

Patients were excluded if they had previously undergone pelvic organ prolapse (POP) surgery and/or anti-incontinence surgery, had comorbid conditions such as diabetes mellitus, chronic obstructive pulmonary disease (COPD), hypertension, neurological or psychiatric disorders, insufficient data, or had undergone prior medical treatment for incontinence. Patients with advanced-stage POP (grad-2 and above) or those who did not consent to participate were also excluded.

Variables

The primary outcomes were the objective and subjective cure rates of MUS surgery at six months postoperatively. Objective cure was defined as a negative cough stress test and the absence of any need for medication for incontinence. Subjective cure was defined as a score of ≤ 1 on the second and third questions of the UDI-6 form. ("Do you experience urine leakage associated with a feeling of urgency and if so, how much does it bother you?") and third question ("Do you experience urine leakage related to physical activity, coughing, or sneezing, and if so, how much does it bother you?") of the UDI-6 form (10).

Data Sources/Measurement

Data were extracted from the patients' preoperative and postoperative records, including age, height, weight, obstetric history, body mass index (BMI), comorbidities, history of pelvic and urogynecological surgeries, smoking status, and current medications. The preoperative evaluation included urodynamic studies, post-void residual urine volume measured by urinary catheterization, and POP grading using the Baden-Walker classification system.

Patients underwent MUS surgery (TOT or TVT) performed by the same experienced urogynecological team using macroporous polypropylene mesh materials (Düzey SVT Vaginal Tape Mesh, Düzey Medical, Turkey). The type of anesthesia, operation time, and any complications were recorded. Postoperative evaluations were conducted at six months, including urogynecological examination findings and validated Turkish versions of the IIQ-7 and UDI-6 quality of life questionnaires (11).

Bias

Selection bias was minimized by rigorously applying inclusion and exclusion criteria and by using standardized methods for data collection and patient evaluation.

Statistical Methods

SPSS 17.0 (Statistical Package for Social Sciences) software was used for statistical analyses. Multiple logistic regression analysis was employed to identify significant risk factors affecting objective cure. Odds ratios (OR), 95% confidence intervals (CI), and significance levels were calculated.

Quantitative Variables

Continuous variables were assessed for normal distribution using the Kolmogorov-Smirnov test. Normally distributed data were presented as mean \pm standard deviation and analyzed using the independent t-test. Non-normally distributed data were presented as median (minimum-maximum) and analyzed using the Mann-

Whitney U test. Categorical variables were expressed as numbers and percentages, analyzed using the chi-square test. Statistical significance was set at p -value < 0.05 .

RESULTS

Of the 70 participants, 38(54.3%) underwent the TOT procedure, and 32(45.7%) underwent the TVT procedure. Demographic and preoperative clinical characteristics were recorded and analyzed (Table 1). The mean age was significantly higher in the TOT group compared to the TVT group (53.4 ± 9.02 vs. 47.4 ± 6.8 years, $p=0.012$). Both groups had similar gravidity and parity, and the majority of patients in both groups were multiparous (89.5% in TOT vs. 78.1% in TVT, $p=0.194$). BMI and the prevalence of obesity were comparable between the groups (30.3 ± 3.2 vs. 29.6 ± 3.8 kg/m², $p=0.414$). Additionally, there was no significant difference in menopause status, smoking history, or history of macrosomic birth between the groups.

Urethral mobility was notably higher in the TOT group (94.7% vs. 62.5%, $p=0.001$). However, other urodynamic parameters, such as residual urine volume, maximum cystometric capacity, and preoperative valsalva leak point pressure (VLPP) and maximal urethral closure pressure (MUCP) values, showed no significant differences between the two groups. The presence of grade-1 cystocele, rectocele, and uterine descent were also similar between the groups.

Postoperative outcomes were assessed using the UDI-6 and IIQ-7 quality of life scales (Table 2). Both groups showed significant improvements in their scores postoperatively, with no significant differences between the groups in terms of improvement magnitude or complication rates. Objective and subjective cure rates showed no significant difference between the groups, with 68.4% of TOT patients achieving objective cure versus 65.6% in the TVT group ($p=0.804$).

Further analysis of the UDI-6 scores revealed a significant reduction in the severity of symptoms postoperatively for both procedures (Table 3). For the TOT procedure, 50% of patients reported no symptoms for UDI-6 Question 2 postoperatively, compared to 0% preoperatively ($p<0.001$). Similarly, the TVT group saw a significant increase in patients reporting no symptoms for the same question (40.6% postoperatively vs. 0% preoperatively, $p<0.001$). Both groups also showed significant improvements in UDI-6 Question 3 scores, with a marked reduction in severe symptoms postoperatively.

Table 1. Demographic and Preoperative Clinical Characteristics of the Groups

	TOT (N=38)	TVT (N=32)	p-value
Age (Years)	53.4 ± 9.02	47.4 ± 6.8	0.012
Follow-up Duration (Months)	6.3 ± 0.7	6.2 ± 0.6	0.843
Gravidity	3 (1-6)	3 (1-8)	0.912
Parity	2 (1-6)	2 (1-7)	0.879
Multiparity (%)	34 (89.5)	25 (78.1)	0.194
Primiparity (%)	4 (10.5)	7 (21.9)	0.194
BMI (kg/m ²)	30.3 ± 3.2	29.6 ± 3.8	0.414
Obesity (≥30 kg/m ²) (%)	10 (20.3)	8 (25.0)	0.900
Menopause Presence (%)	21 (55.3)	13 (40.6)	0.222
History of Macrosomic Birth (%)	5 (13.2)	6 (18.8)	0.522
Smoking (%)	5 (13.2)	7 (21.9)	0.335
Positive CST (%)	35 (92.1)	30 (93.8)	0.790
Urethral Mobility Presence (%)	36 (94.7)	20 (62.5)	0.001
Grade 1 Cystocele (%)	24 (63.2)	18 (56.3)	0.557
Grade 1 Rectocele (%)	20 (52.6)	18 (56.3)	0.762
Grade 1 Uterine Descent (%)	8 (21.1)	6 (18.8)	0.810
Residual Urine Volume (cc)	80.6 ± 10.4	78.5 ± 9.7	0.638
Maximum Cystometric Capacity (cc)	400 (320-420)	430 (360-450)	0.329
VLPP (cmH ₂ O)	79.1 ± 12.1	70.6 ± 10.4	0.168
MUCP (cmH ₂ O)	50.6 ± 5.8	44.8 ± 10.2	0.102
Presence of DO (%)	27 (71.1)	22 (68.8)	0.834
Operation Duration (min)	45.8 ± 12.6	44.9 ± 11.6	0.818

Data are presented as mean ± standard deviation, median (minimum - maximum), or number (%).

BMI: Body Mass Index; CST: Cough Stress Test; DO: Detrusor Overactivity, IIQ-7: Incontinence Impact Questionnaire-7, MUCP: Maximal Urethral Closure Pressure VLPP: Valsalva Leak Point Pressure, UDI-6: Urogenital Distress Inventory-6.

Table 2. Preoperative and Postoperative Quality of Life Scores

	TOT (N=38)	TVT (N=32)	p-value
Preop. UDI-6	13.5 ± 3.4	14.1 ± 3.4	0.623
Preop. IIQ-7	15.6 ± 3.7	16.1 ± 3.0	0.418
Postop UDI-6 Score	3.2 ± 0.9	3.3 ± 1.1	0.836
Change in UDI-6 Score	10.6 ± 3.9	11.0 ± 3.5	0.614
Postop IIQ-7 Score	3.9 ± 1.0	3.3 ± 1.0	0.416
Change in IIQ-7 Score	11.9 ± 4.1	12.7 ± 3.8	0.783
Objective Cure (%)	26 (68.4)	21 (65.6)	0.804
Subjective Cure (%)	28 (73.7)	21 (65.6)	0.464
Postop Stress Test (+) (%)	5 (13.2)	3 (9.4)	0.620
Postop Medication (+) (%)	10 (26.3)	11 (34.4)	0.464
Complication: Bladder Perforation (%)	0 (0)	1 (3.1)	-
Complication: Voiding Dysfunction (%)	1 (2.6)	2 (6.3)	-
Complication: Erosion (%)	1 (2.6)	-	-

Data are presented as mean ± standard deviation or number (%).

DO: Detrusor Overactivity, IIQ-7: Incontinence Impact Questionnaire-7, MUCP: Maximal Urethral Closure Pressure, UDI-6: Urogenital Distress Inventory-6.

Multiple regression analysis was conducted to identify factors related to achieving an objective cure (Table 4). Urethral mobility was positively associated with an objective cure (OR 1.1, p=0.020), while the presence of detrusor overactivity was associated with a decreased likelihood of achieving an objective cure (OR 1.1,

p=0.031). Other factors, including age, parity, obesity, menopause status, preoperative VLPP, preoperative MUCP, and the type of procedure (TOT vs. TVT), were not significantly associated with objective cure outcomes.

Table 3. Distribution of UDI-6 Quality of Life Scale Scores Preoperatively and Postoperatively for TOT and TVT Procedures

UDI-6 Scale - Question 2 Score	Preoperative	Postoperative	p-value
TOT Procedure			
0 (None)	0 (0.0%)	19 (50.0%)	<0.001
1 (Mild)	2 (5.3%)	9 (23.7%)	<0.001
2 (Moderate)	12 (31.6%)	4 (10.5%)	<0.001
3 (Severe)	24 (63.2%)	6 (15.8%)	<0.001
TVT Procedure			
0 (None)	0 (0.0%)	13 (40.6%)	<0.001
1 (Mild)	1 (3.1%)	8 (25.0%)	<0.001
2 (Moderate)	9 (28.1%)	4 (12.5%)	<0.001
3 (Severe)	22 (68.8%)	7 (21.9%)	<0.001
UDI-6 Scale - Question 3 Score	Preoperative	Postoperative	p-value
TOT Procedure			
0 (None)	0 (0.0%)	30 (78.9%)	<0.001
1 (Mild)	4 (10.5%)	3 (7.9%)	<0.001
2 (Moderate)	12 (31.6%)	1 (2.6%)	<0.001
3 (Severe)	21 (55.3%)	4 (10.5%)	<0.001
TVT Procedure			
0 (None)	1 (3.1%)	27 (84.4%)	<0.001
1 (Mild)	2 (6.3%)	2 (6.3%)	<0.001
2 (Moderate)	3 (9.4%)	1 (3.1%)	<0.001
3 (Severe)	26 (81.3%)	2 (6.3%)	<0.001

Data are presented as number (%).

IIQ-7: Incontinence Impact Questionnaire-7, UDI-6: Urogenital Distress Inventory-6.

Table 4. Multiple Regression Analysis Results for Factors Related to Objective Cure

Factor	Objective Cure Present (N=47)	No Objective Cure (N=23)	OR (95% CI)	p-value
Age (Years)	50.1 ± 8.2	51.1 ± 7.4	1.1 (0.1-9.5)	0.912
Parity	2 (1-6)	2 (1-7)	1.1 (0.2-10.5)	0.941
Obesity	12 (25.5%)	6 (26.1%)	0.9 (0.3-11.5)	0.818
Menopause	22 (46.9%)	12 (52.2%)	0.6 (0.2-13.0)	0.799
Urethral Mobility	42 (89.4%)	14 (60.9%)	1.1 (1.0-1.2)	0.020
Preoperative VLPP (cmH2O)	69.2 ± 11.2	70.1 ± 10.2	1.4 (1.0-2.7)	0.679
Preoperative MUCP (cmH2O)	49.8 ± 6.3	44.3 ± 5.7	0.8 (0.6-1.4)	0.565
TOT	26 (55.3%)	12 (52.2%)	1.2 (0.5-18.3)	0.729
TVT	21 (44.7%)	11 (47.8%)	1.2 (0.5-18.3)	0.729
DO Present	30 (63.8%)	19 (82.6%)	1.1 (1.1-1.2)	0.031

Data are presented as mean ± standard deviation, median (range), or number (%). OR: Odds Ratio, CI: Confidence Interval,

DO: Detrusor Overactivity, MUCP: Maximal Urethral Closure Pressure, VLPP: Valsalva Leak Point Pressure.

In summary, the TOT and TVT procedures both resulted in significant improvements in quality of life, as measured by UDI-6 and IIQ-7 scores, with no significant differences in complication rates or cure rates between the two techniques. Urethral mobility emerged as a significant factor in achieving an objective cure, whereas detrusor overactivity negatively impacted the likelihood of success.

DISCUSSION

The treatment of MUI, encompassing both SUI and UUI, requires a multifaceted approach involving conservative, surgical, and medical options. There is no consensus on the optimal treatment approach for MUI, necessitating individualized treatment plans that may involve a combination of therapies.

The Petros Integral Theory highlights the role of lax suspensory ligaments in pelvic floor dysfunction, classifying three anatomical 'zones' based on ligament locations. The anterior zone, from the external meatus to the bladder neck, includes the external urethral ligament (EUL), pubourethral ligament (PUL), and vaginal 'hammock.' The middle zone, from the bladder neck to the cervix, contains the arcus tendineus fascia pelvis (ATFP), cardinal ligaments, and pubocervical fascia (PCF). The posterior zone, from the cervix to the perineal body, includes the uterosacral ligaments (USL), perineal body (PB), and rectovaginal fascia (RVF). The uterus contributes to both the middle and posterior zones via the cervical rings. Surgically, the theory supports minimally invasive procedures to address lax ligaments causing prolapse or symptoms. A less invasive tensioned sling, developed in 2005, reinforces all four suspensory ligaments and the perineal body, reattaching organs to the levator hiatus. It is often preferred for young, sexually active women without urethral mobility. (12)

Our study, aiming to evaluate the effectiveness of TOT versus TVT procedures in treating MUI, found that the average age of patients in the TVT group was significantly lower than that in the TOT group ($p=0.012$). This aligns with general urogynecological practice, where TVT is preferred for younger patients to reduce the incidence of complications such as dyspareunia and mesh erosion (13). Older patients tend to undergo TOT due to its lower surgical morbidity. This demographic difference reflects the clinical approach to selecting surgical procedures for MUI.

Preoperative clinical characteristics revealed a significantly higher rate of urethral hypermobility in the TOT group compared to the TVT group (94.7% vs. 62.5%, $p=0.001$). This preference for TOT in cases of urethral hypermobility and TVT in cases without such mobility reflects the clinical belief that TOT offers similar efficacy with a lower risk of severe complications (14). This approach is consistent with recommended practices in urogynecology.

The effectiveness of surgical methods for treating MUI is not well-defined in the literature due to varying impacts on the stress and urge components of MUI. While surgery is generally considered effective for improving the stress component, its impact on urge symptoms is less clear, with some studies suggesting that urge symptoms might worsen postoperatively (13). Our study found significant improvements in both stress and urge components following MUI surgeries.

Previous studies have reported varying outcomes for urge symptoms after different surgical procedures. For instance, Tahseen et al. (2009) found a 79% improvement in urge symptoms after TOT surgery (15). Kulseng-Hanssen et al. (2008) observed that 43% of

patients had complete resolution of urge symptoms at 7 months post-TVT operation, with 34.6% at 38 months (16). Our study showed that 34.4% of patients in the TVT group and 26.3% in the TOT group required postoperative medication for urge symptoms at 6 months, suggesting that TVT might result in relatively less improvement in urge symptoms, though this difference was not statistically significant.

Other studies, such as those by Segal et al. (2004) and Paick et al. (2004), found high success rates for both stress and urge components with TVT and TOT procedures (17,18).

Kudish et al. (2010) reported similar high success rates for both procedures, while Nyssönen et al. (2014) and Jain et al. (2010) found no significant difference in effectiveness between TVT and TOT in treating MUI symptoms. (13,19,20). However, Salo et al. (2023) found no significant difference in the effectiveness of the two procedures for treating SUI, even in the long-term follow-up period (21). Our findings support the literature, indicating that both TOT and TVT procedures are similarly effective in treating stress incontinence, with no significant difference in objective cure rates.

Complication rates also differ between procedures. TOT is generally considered safer with fewer major complications compared to TVT, which is associated with a higher incidence of major organ injuries, bladder perforation, and postoperative voiding dysfunction (22). Our study found low complication rates for both procedures, with similar occurrences of adverse events, supporting the safety of both approaches (23).

The literature on factors affecting surgical success for MUI is limited. Some studies suggest that preoperative low Maximum Urethral Closure Pressure (MUCP), presence of detrusor overactivity, and history of previous anti-incontinence surgery may negatively impact surgical outcomes (18,24,25). Our study focused on the effectiveness of TOT and TVT, excluding these potential risk factors, thus not categorizing them as risk factors. However, factors such as immobile urethra and presence of detrusor overactivity were found to negatively affect surgical success in our study.

Our study's limitations include its retrospective design and small sample size, which restrict generalizability. Additionally, short-term outcomes necessitate further investigation in long-term studies. The lack of consensus in defining UUI within MUI may also affect the comparison of our results with existing literature. Despite these limitations, our study contributes valuable insights into the comparative effectiveness of TOT and TVT for MUI and underscores the need for larger, prospective, randomized studies to confirm these findings and enhance clinical practice.

CONCLUSION

Both TOT and TVT procedures are effective in the short term for treating both stress and urge incontinence in MUI. There is no significant difference in effectiveness between the two methods. Both procedures have low complication rates, making them safe options. However, preoperative factors such as immobile urethra and detrusor overactivity may reduce the success rate of these operations. Informing patients about these factors is crucial for ensuring they are well-informed, which in turn helps build trust, especially in cases where the outcomes may be less favorable. Further prospective, randomized studies are needed to validate these results and optimize clinical practice.

Conflict of interest

None

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