

EFFICACY ANALYSIS OF TRANSURETHRAL TRIGONE SUBMUCOSAL DEAFFERENTATION PROCEDURE PLUS TRANS-OBTURATOR SLING VERSUS TRANS-OBTURATOR SLING ALONE IN THE TREATMENT OF MIXED URINARY INCONTINENCE

Hypothesis / aims of study

Many patients with female mixed urinary incontinence suffer from overactive bladder symptom even after the midurethral sling operation. Although antimuscarinic shows good efficacy in treating overactive bladder, significant number of patients suffer from side effects. Moreover symptoms usually recur when long-term antimuscarinic medication discontinued. Ingelman-Sundberg denervation procedure was tried for these patients with favourable results, but it is not widely used. We modified Ingelman-Sundberg denervation procedure to develop simple, effective method for these patients. We evaluated the surgical outcomes of this transurethral trigone submucosal deafferentation (TTSD) procedure combined with trans-obturator sling (TVT-O) for the treatment of female mixed urinary incontinence.

Study design, materials and methods

From Dec. 2009 to Dec. 2011, 39 female patients with mixed urinary incontinence were enrolled prospectively. A baseline study included stress test, pad test, frequency-volume chart, urodynamic study, international consultation on incontinence modular questionnaires (ICIQ-OAB), and overactive bladder symptom score (OABSS) questionnaires. Patients who were diagnosed as having both stress urinary incontinence (with urodynamic study), and overactive bladder (2 point or more in OABSS Q3) were included. Patients with neuropathic bladder, vesical fistula, urethral diverticulum, urothelial tumor and history of previous pelvic surgery, pelvic radiation were excluded. Patients underwent either combined TVT-O plus TTSD procedure or TVT-O only. TTSD procedure was dissection and detachment of the mucosal layer from underlying muscular layer of bladder trigone with cystoscopic scissor endoscopically. All patients were evaluated at 3 month post-operatively for the complications and the change of storage symptom with OABSS and ICIQ-OAB questionnaires.

Results

Eighteen patients underwent TVT-O only (control group) and 21 patients underwent TVT-O plus TTSD procedure (study group). Preoperatively there was no significant differences between two groups. At 3 months after operation, symptom scores were improved in both group, but improvement was apparent in study group than control group. In study group, frequency score was significantly improved (preop. 2.04 ± 1.35 vs postop. 0.66 ± 1.11) than control group (preop. 1.44 ± 1.46 vs postop. 1.00 ± 1.23) with bother scale also significantly more decreased (study group: preop. 7.61 ± 2.43 vs postop. 2.38 ± 3.11 , control group: preop. 5.55 ± 3.85 vs postop. 3.00 ± 3.53). Improvement of nocturia was also significantly higher in study group (preop. 2.04 ± 1.24 vs postop. 1.00 ± 0.89) compared to control (preop. 2.22 ± 1.26 vs postop. 1.77 ± 1.11). Urge score and Urge incontinence score were not significantly more improved than control group but bother scale was significantly more decreased in study group (study group: preop. 7.76 ± 2.07 vs postop. 1.90 ± 2.93 , control group: preop. 5.72 ± 3.70 vs postop. 2.77 ± 3.19) (Table 1). There was no significant complication after operation in both group. In study group, there were 10/21 (47.62%) patients who took antimuscarinic medication preoperatively. But after operation only 2/21 (9.52%) patients sustained medication. On the contrary, in control group, 3/18 (16.67%) patients had antimuscarinic medication before operation and 4/18 (22.22%) patients needed medication post-operatively.

Interpretation of results

Transurethral trigone submucosal deafferentation procedure, combined with midurethral sling operation effectively improved frequency, and bother with frequency and urgency in female patients with mixed urinary incontinence. It also lowered the need for antimuscarinic medication after midurethral sling operation in female patients with mixed urinary incontinence.

Concluding message

Mixed urinary incontinence can potentially be treated with combined TVT-O plus TTSD procedure.

Disclosures

Funding: None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Hanyang University Institutional Review Board

HYC-11-001 **Helsinki:** Yes **Informed Consent:** Yes

Symptom Score		Total	Study Group (n=21)	Control Group (n=18)	p-value
ICIQ 3a (frequency)	Pre OP	1.76±1.42	2.04±1.35	1.44±1.46	0.020
	Post OP	0.82±1.16	0.66±1.11	1.00±1.23	
	Difference	-0.94±1.27	-1.38±1.28	-0.44±1.09	
ICIQ 3b (frequency scale) bother	Pre OP	6.66±3.29	7.61±2.43	5.55±3.85	0.039
	Post OP	2.66±3.28	2.38±3.11	3.00±3.53	
	Difference	-4.00±4.09	-5.23±3.80	-2.55±4.03	
ICIQ 4a (nocturia)	Pre OP	2.12±1.23	2.04±1.24	2.22±1.26	
	Post OP	1.35±1.06	1.00±0.89	1.77±1.11	

	Difference	-0.76±0.81	-1.05±0.74	-0.44±0.78	0.018
ICIQ 4b (nocturia bother scale)	Pre OP	6.38±3.45	6.61±3.38	6.11±3.61	
	Post OP	3.15±3.54	2.42±3.07	4.00±3.94	
	Difference	-3.23±3.71	-4.19±3.15	-2.11±4.07	0.081
ICIQ 5a (urgency)	Pre OP	2.33±1.19	2.52±1.12	2.11±1.27	
	Post OP	0.76±1.11	0.57±0.97	1.00±1.23	
	Difference	-1.56±1.53	-1.95±1.49	-1.11±1.49	0.088
ICIQ 5b (urgency bother scale)	Pre OP	6.82±3.07	7.76±2.07	5.72±3.70	
	Post OP	2.30±3.04	1.90±2.93	2.77±3.19	
	Difference	-4.51±3.96	-5.86±3.59	-2.94±3.87	0.020
ICIQ 6a (urge incontinence)	Pre OP	1.74±1.22	1.61±0.86	1.88±1.56	
	Post OP	0.43±1.07	0.28±0.95	0.61±1.19	
	Difference	-1.31±1.12	-1.33±1.01	-1.27±1.27	0.880
ICIQ 6b (urgeincontinence bother scale)	Pre OP	6.61±3.24	7.47±2.76	5.61±3.55	
	Post OP	1.30±2.79	0.90±2.71	1.77±2.88	
	Difference	-5.31±3.65	-6.57±3.26	-3.83±3.60	0.017
OABSS 1 (frequency)	Pre OP	0.97±0.74	1.19±0.74	0.72±0.66	
	Post OP	0.64±0.77	0.57±0.81	0.72±0.75	
	Difference	-0.33±0.90	-0.62±0.86	0.00±0.84	0.030
OABSS 2 (nocturia)	Pre OP	1.82±1.07	1.66±1.11	2.00±1.02	
	Post OP	1.51±0.94	1.28±0.78	1.77±1.06	
	Difference	-0.31±0.86	-0.38±0.92	-0.22±0.80	0.574
OABSS 3 (urgency)	Pre OP	2.76±1.34	2.90±1.17	2.61±1.53	
	Post OP	0.87±1.21	0.71±1.18	1.05±1.25	
	Difference	-1.89±1.33	-2.19±1.43	-1.55±1.14	0.140
OABSS 4 (urge incontinence)	Pre OP	2.28±1.62	2.47±1.40	2.05±1.86	
	Post OP	0.58±1.29	0.47±1.20	0.72±1.40	
	Difference	-1.69±1.39	-2.00±1.37	-1.33±1.37	0.140
OABSS Total	Pre OP	7.84±3.43	8.23±2.84	7.38±4.06	
	Post OP	3.61±3.55	3.04±3.21	4.27±3.89	
	Difference	-4.23±3.14	-5.19±3.10	-3.11±2.88	0.038

Table 1. Comparison of symptom score change between TVT-O plus TTSD group and TVT-O only group