

## PREDICTIVE FACTOR FOR A SUCCESSFUL SURGICAL OUTCOME OF TRANSURETHRAL INCISION OF BLADDER NECK IN FEMALE PATIENTS WITH DETRUSOR UNDERACTIVITY.

### Hypothesis / aims of study

Detrusor underactivity (DU) is defined by the International Continence Society as a contraction of reduced strength and/or duration resulting in prolonged or incomplete emptying of the bladder. We had reported transurethral incision of bladder neck (TUI-BN) could improve voiding efficiency in female patients with DU. However, some patients could not have satisfied surgical outcome. Current study investigated the predict factor of TUI-BN in female patients with DU.

### Study design, materials and methods

The female patients who had chronic urinary retention or having large postvoid residual (PVR), and were videourodynamic study (VUDS) proven DU underwent TUI-BN were retrospectively analyzed. All of these patients were failure to conservative treatment including indwelling urethral catheter and medication. VUDS parameters before and after operation were recorded and compared, including voiding efficiency, PVR, maximum flow rate (Qmax), intra-vesicle pressure (Pves) and detrusor pressure (Pdet). The patients with post-operation voiding efficiency of less than 0.33 and more than 0.33 are considered as dissatisfied and satisfied surgical outcomes respectively. The patients with history of spinal cord injury or pelvic surgery were considered as neurogenic DU, and the others were consider as idiopathic DU.

### Results

Among a total 41 patient, overall voiding efficiency, PVR, Qmax and voided volume were significantly improved after TUI-BN (Table 1). Twelve patients had dissatisfied surgical outcome and 29 patients had satisfied outcome. Only baseline Pves is significantly higher in the patients with satisfied outcome than that in the patients with dissatisfied outcome ( $p=0.03$ ) (Table 1). The patients with neurogenic DU had better post-operation voiding efficiency than the patients with idiopathic DU ( $p=0.05$ ) (Table 2). The patients with baseline Pves > 20 cmH<sub>2</sub>O also had better post-operation voiding efficiency than the patients with baseline Pves < 20 cmH<sub>2</sub>O ( $p=0.02$ ) (Table 2). The patients with neurogenic DU and high baseline Pves had higher rate of satisfied outcome. Baseline voiding efficiency, Pdet, Qmax and PVR did not have difference in the patients with dissatisfied or satisfied surgical outcomes.

### Interpretation of results

The resulted showed 70.7% patients had satisfied surgical outcomes. Only baseline high intra-vesicle voiding pressure is associated with satisfied surgical outcomes. The patients with neurogenic DU also had better post-OP voiding efficiency, and it might result from higher Pves at baseline.

### Concluding message

TUI-BN could improve voiding efficiency in female patients with DU. Baseline high Pves might be a predictor factor for satisfied surgical outcomes.

Table 1. Surgical outcome of TUI-BN in female with DU

		Overall outcome (N=41)	dissatisfied outcome (N=12)	Satisfied outcome (N=29)	p-value**
Age		59.00±14.91	60.00±17.47	58.63±14.13	0.79
Voiding efficiency	Baseline	0.05±0.14	0.01±0.02	0.06±0.16	0.24
	Postoperative	0.45±0.35*	0.04±0.07	0.62±0.27*	<0.01
PVR (mL)	Baseline	395.7 ±180.3	438.8±182.5	380.4±159.2	0.17
	Postoperative	176.1±163.5*	374.4±162.0	116.6±109.2*	<0.01
Qmax (mL/s)	Baseline	1.10±2.09	0.56±1.67	1.38±2.37	0.24
	Postoperative	7.13 ± 7.14*	1.56±2.00*	7.98±4.50*	<0.01
Pdet (cmH <sub>2</sub> O)	Baseline	3.93 ±6.11	5.00±4.39	4.05±5.98	0.70
	Postoperative	8.76 ±9.84*	8.22±10.50	8.58±8.67*	0.94
Pves (cmH <sub>2</sub> O)	Baseline	50.07±43.93	36.11±32.51	56.68±47.81	0.03
	Postoperative	49.18±36.18	48.44±34.16	49.53±38.00	0.96

\*: significantly difference ( $p<0.05$ ) between baseline and post-op in each group;

\*\* : Comparing baseline and postoperative urodynamic parameter between the patients with dissatisfied and satisfied outcome.

Table 2. Surgical outcome in different subgroups

	Neurogenic DU N=25	Idiopathic DU N=16	p-value	Pves > 20 cmH N=30	Pves < 20 cm N=11	p-value
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Age		56.15±17.17	63.12±9.92	0.13	58.72±17.14	59.75±6.40	0.42
Satisfied outcome rate		22/25=88%	7/16=43.8%	<0.01	24/30=80%	5/11=45.5%	0.03
Voiding efficiency	Baseline	0.07±0.17	0.02±0.04	0.24	0.06±0.16	0.01±0.05	0.32
	Post-OP	0.53±0.32*	0.32±0.36*	0.05	0.51±0.34*	0.29±0.33*	0.02
PVR (mL)	Baseline	375.2±171.1	420.8±155.4	0.38	380.3±158.0	433.3±184.3	0.27
	Post-OP	142.2±135.4*	224.8±191.2*	0.12	161.6±152.1*	218.0±195.8*	0.13
Qmax (mL/s)	Baseline	1.22±2.21	1.07±2.28	0.70	1.13±2.13	1.22±2.53	0.61
	Post-OP	7.60±5.03*	4.58±4.33*	0.69	6.52±5.27*	5.44±3.88*	0.25
Pdet (cmH <sub>2</sub> O)	Baseline	4.54±6.74	4.20±4.28	0.95	3.86±5.89	5.86±3.81	0.36
	Post-OP	5.00±5.20*	12.13±12.08*	0.06	8.48±9.27*	8.43±9.25	0.76
Pves (cmH <sub>2</sub> O)	Baseline	78.23±49.94	29.47±19.08	<0.01	65.10±43.20	13.14±3.89	0.00
	Post-OP	67.08±39.88	40.00±32.73	0.04	56.67±39.46*	41.71±32.87	0.99

\*: significantly difference (p<0.05) between baseline and post-op in each group;

\*\* : Comparing baseline and postoperative urodynamic parameter between each subgroup.

#### Disclosures

**Funding:** None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Research Ethics Committee of Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation **Helsinki:** Yes **Informed Consent:** Yes