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**The Outcomes of Transurethral Water Vapour Therapy (REZUM) versus Transurethral Resection of Prostate (TURP) for Catheter-dependent Patients with Benign Prostate Hyperplasia (BPH): A 2 Year Propensity Score-matched Retrospective Evaluation**

TY Lai, NT Kwok, CS Yam, WC Lam, LF Lee, TO Yu, HS So

Division of Urology, Department of Surgery, United Christian Hospital



基督教聯合醫院  
UNITED CHRISTIAN HOSPITAL

**Background**

Transurethral Water Vapour Therapy (REZUM), as an emerging minimally invasive procedure that can be performed under local anesthesia, provides an alternative option to catheter-dependent patients with benign prostate hyperplasia (BPH). International study had suggested that REZUM showed comparable efficacy and safety in management of catheter-dependent patients.

**Aim of Study**

We aim to review the efficacy and safety of REZUM versus TURP in catheter-dependent patients with BPH in our regional hospital.

**Method**

40 catheter-dependent patients with REZUM and 148 with TURP performed from May 2022 to May 2024 in the United Christian Hospital were retrospectively reviewed. Patients were stratified by age, prostate size, first catheterized volume, history of diabetes or impaired fasting glucose and history of neurological diseases.

**Results**

76 propensity score-matched patients were identified.

76% (n=29/38) patients with REZUM and 90% (n=34/38) with TURP done had successfully weaned off catheter (TWOC) (p=0.22). The mean time of successful weaning catheter in REZUM group was 33 days. All REZUM were performed under local anesthesia in day surgery, while TURP were performed under spinal anesthesia (n=36, 95%) or general anesthesia (n=2, 5%) with the longer mean operative time of 65mins (26mins in REZUM group, p<0.001). The mean length of hospital stays for the TURP group was longer of 3.2 days (p<0.001). 3 (7.9%) of the REZUM group who failed TWOC had re-treatment with TURP (n=1), HoLEP (n=1) or PAE (n=1).

The mean post-operative Qmax in TURP was 17.5ml/s (n=24), which was significantly higher than the REZUM (11.9ml/s, n=24) (p=0.01, 95%CI -10.0--1.3). The mean post-operative residual urine was 52ml in REZUM and 67ml in TURP group (p=0.37, 95%CI -46.8--17.7). The mean IPSS improvement was 1.93 (n=14) in REZUM and 6.3 (n=27) in TURP group (p=0.18, 95%CI -10.8--2.1).

Patient demographics	Rezum Mean ± SD	TURP Mean ± SD	p-value
Age	79.7 ± 9.9	76.9 ± 6.6	0.148
Prostate size (ml)	33.3 ± 5.4	23.3 ± 3.8	0.051
Pre-operative PSA (ng/mL)	7.7 ± 10.1	9.2 ± 7.5	0.578
History of DM / IFG			
Yes	21 (55%)	18 (47%)	0.491
No	17 (44%)	20 (53%)	
History of neurological diseases			
Yes	11 (29%)	11 (29%)	1.00
No	27 (71%)	27 (71%)	
First catheterized volume < 1000ml	19 (59%)	15(63%)	0.813
>= 1000ml	13 (41%)	9 (37%)	
Pre-operative bacteruria			
Yes	25 (66%)	26 (68%)	0.807
No	13 (34%)	12 (32%)	
Indication of intervention			
Refractory retention	16 (42%)	24 (63%)	0.066
Obstructive uropathy	22 (58%)	14 (37%)	

\*DM = diabetes mellitus / IFG = impaired fasting glucose / PSA = prostate-specific antigen

Results	Rezum Mean ± SD	TURP Mean ± SD	p-value
Post-operative Qmax (mL/s)	11.9 ± 6.5	17.5 ± 8.4	0.012
Post-operative RU (mL/s)	52.2 ± 43.8	66.8 ± 69.2	0.370
Post-operative IPSS improvement	4.4 ± 9.5	6.3 ± 9.0	0.549
Post-operative QoL improvement	0.8 ± 1.0	1.2 ± 1.2	0.224
Post-op PSA	13.2 ± 11.1	5.3 ± 7.0	0.037
Successful TWOC			
Yes	29 (76%)	34 (89%)	0.222
No	9 (23%)	4 (11%)	
Time of successful TWOC	33.0 ± 6.0	3.6 ± 1.2	<0.001
Operative time	26.3 ± 6.9	65.2 ± 31.1	<0.001
Duration of hospital stay	1.0 ± 0	2.8 ± 1.3	<0.001
Mode of Anesthesia			
Local anesthesia	38 (100%)	0	
Spinal anesthesia	0	36 (95%)	
General anesthesia	0	2 (5%)	
Complications			
Yes	3 (8%)	3 (8%)	1.0
Clavien-Dindo Grade I	2 (5.3%)	0	
Clavien-Dindo Grade II	1 (2.6%)	3 (8%)	
No	35 (92%)	35 (92%)	

\*Qmax = peak urinary flow rate / RU = residual urine / IPSS = International Prostate Symptom Score / QoL = Quality of Life score / PSA = prostate-specific antigen / TWOC = trial without catheter

The mean QoL score improvement was 0.75 (n=12) in REZUM and 1.2 (n=27) in TURP group (p=0.22, 95%CI -1.2--0.3).

The complication rate for REZUM and TURP group was the same, at 7.9% (n=3 each, p=1.0). The reported complications of REZUM group included hematuria (n=2, 5.3%, Clavien-Dindo Grade I) or epididymo-orchitis (n=1, 2.6%, Grade II).

**Conclusion**

REZUM offered similar symptoms improvement and safety profile compared with TURP, while showing potential superiority in terms of shorter operative time, length of hospital stays and avoidance of anesthesia.