



Original Article

Transurethral Resection of Prostate (TURP) Against Transurethral Incision of Prostate (TUIP) in Benign Prostatic Hyperplasia Management

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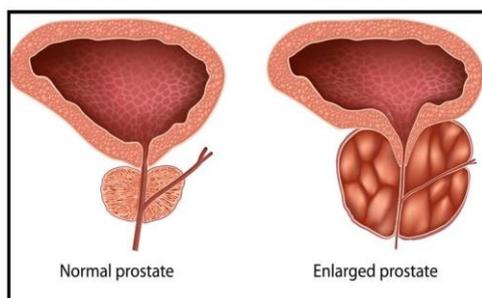
Transurethral incision of the prostate

ABSTRACT

As men age, a condition known as benign prostatic hyperplasia (BPH), or enlargement of the prostate gland, becomes more prevalent. The technique of transurethral incision of the prostate (TUIP) involves splitting the bladder outlet to relieve inferior urinary tract symptoms related to BPH with no need to remove tissues. Likewise, the surgery to remove portions of the prostate gland through the penis is known as a transurethral resection of the prostate (TURP). No cuts are required. By inserting a tool via the urethra and into the penis, the surgeon can access the prostate. The primary objective of the current study is to assess and compare the results of each procedure in a case reference study using a sample of Iraqi patients who had surgery to treat BPH. A total of 78 males with symptomatic BPH participated in this study, 31 of whom underwent TUIP, and the rest got TURP. The main outcomes to be evaluated were the periods of operation, hospital admission, catheterization, the international prostate symptom score (IPSS), the Q max, the post-voiding residual volume, and the ejaculation preservation. The mean durations of operation, hospital stay, and catheterization was significantly shorter in TUIP patients in comparison with TURP patients ($P < 0.05$). The frequency of patients with preserved ejaculation was significantly more in TUIP patients compared with TURP patients (64.5 % vs. 37.0%) ($P < 0.018$). TUIP was significantly better compared with TURP concerning the shorter durations of operation, hospital stays, catheterization, and preservation of ejaculation in optimally selected patients.

GRAPHICAL ABSTRACT

TUIP against TURP in benign prostatic hyperplasia management



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Introduction

The term benign prostatic hyperplasia (BPH) is a histopathological term applied to benign neoplastic proliferation of epithelial and stromal cellular components of the prostate [1-5]. From clinical perspective, the condition is going to be significant if it is related with inferior urinary tract symptoms in connotation with inferior urinary tract symptoms due to bladder outlet obstruction [6-8]. Age is an important risk factor and the prevalence of BPH increases with age since half of men above 60 will have histological evidence of hyperplasia and approximately 90 % will have so by the age of 80 [9]. Significant clinical symptoms of inferior urinary tract obstruction as a consequence of BPH have been also seen to be more prominent with aging [10-12]. A number of medical approaches are present nowadays with variation in rate of success depending on the prostate size, age of patients, the severity, and duration of lower urinary tract symptoms [13-15]. However, medical treatment may fail to control these symptoms and surgical intervention becomes a must to relieve significant lower urinary tract obstruction [16]. The operation of transurethral resection of prostate (TURP) was introduced in 1926 and continues to evolve during the previous and the current centuries to be the operation of choice for symptomatic BPH because of the long-term effective relief of lower urinary tract symptoms [17]. A lot of complications associate TURP because of the use of electrol energy, irrigation solution, and the nature of this surgery [17]. These complications included bleeding, TUR syndrome, the need for reoperation, etc. [18-20]. The technique of "transurethral incision of the prostate (TUIP)" involves splitting the bladder outlet to relieve lower urinary tract symptoms associated with BPH with no need to remove tissues. This technique was initially described by Orandi in 1969 [21]. According to the American, European, and Canadian guidelines, this technique is reserved for small size prostate (less than 30 ml) and with no middle lobes [22-24]. Advantages of this type operation included less frequent retrograde ejaculation, negligible risk of morbidity perioperatively, less postoperative

hemorrhage, and shorter duration of operation [25]. Despite these advantages, TUIP is still less favorable by urologic surgeons and this may be due to questionable long term symptomatic relief, limitations due to the size of prostate, the lack of transrectal ultrasound for exact size estimation, and the subjective preference of the widely accepted TURP [21]. The primary objective of the current study is to assess and compare the results of each of these procedures (TUIP and TURP) in a case reference study using a sample of Iraqi patients who had surgery to treat BPH.

Materials and Methods

The current comparative prospective study done in the urology department of Hilla Teaching Hospital, Babel Province, Iraq. From June the 3rd, 2018 until February the 10th, 2020. 78 men with symptomatic BPH, 31 of them underwent TUIP and the remaining patients underwent TURP. The inclusion criteria were men below 65 years of age with symptomatic benign prostate hyperplasia of < 30-gram size. Patients with prostate size of > 30 grams and or prominent median lobe were excluded from the study. Following the operation all participants were followed up for a period ranging between a min of 3 months and a max of 6 months. The main outcomes to be evaluated were the period of operation, the period of hospital admission, the catheterization duration, the international prostate symptom score (IPSS), the Q max, the post-voiding residual volume of urine, and the ejaculation preservation. A formal ethical approval of was delivered by the Group of Ethical Approval of the College of Medicine of University of Babylon. Verbal consent was further available for each member subsequent thorough design of the aim and the procedures of the current study. The statistical analysis was done using (SPSS version 23). Measurable information as mean, standard deviation, and range. Qualitative information was number and percentage. T-test was used to compare mean age, prostate size, duration of operation, duration of hospital stays, catheterization duration, the max. urinary flow rate (Q max), the post-voiding residual volume, and IPSS between TUIP and TURP groups [26, 27]. Chi-square test was used

to compare frequencies patients with preserved ejaculation between TUIP and TURP groups.

Results and Discussion

The mean age and age range of patients enrolled in the current study are presented in Table 1. The mean size and size range of prostate are further indicated in Table 1. The average age of patients undergone TUIP was 60.65 ±3.15 years and that of men undergone TURP was 59.80 ±2.22. There was significant difference in average age between both groups (P = 0.173). There was also no significant difference in preoperative mean size of prostate between both groups, 23.84 ±3.03 gram vs. 24.28 ±3.16 gram, respectively (P =

0.541). Comparison of peri-operative outcome characteristics between TUIP and TURP groups is reported in Table 2. The mean duration of operation was significantly shorter in TUIP group compared with that in TURP group, 69.35 ±14.71 minutes versus 79.46 ±18.64 minutes, respectively (P = 0.013). In addition, the mean duration of hospital stay was significantly shorter in TUIP group in comparison to that in TURP group, 3.35 ± 1.05 days versus 3.85 ±0.99 days, respectively (P = 0.040). Moreover, the mean duration of catheterization was significantly shorter in TUIP group compared with that in TURP group, 3.48 ±1.15 days vs. 4.11 ±1.27 days, respectively (P = 0.031), as indicated in Table 2.

Table 1: Comparison of mean age and mean preoperative prostate size between TUIP and TURP groups

Characteristic	TUIP n = 31	TURP n = 46	P
Age (years)			
Mean ± standard deviation	60.65 ±3.15	59.80 ±2.22	0.173 †
Range	55 -64	56 -64	NS
Size of prostate (gram)			
Mean ± standard deviation	23.84 ±3.03	24.28 ±3.16	0.541 †
Range	20 -29	20 -32	NS

n: number of cases; †: Independent samples t-test; NS: not significant at P > 0.05.

Table 2: Comparison of peri-operative outcome characteristics between TUIP and TURP groups

Characteristic	TUIP n = 31	TURP n = 46	P
Duration of operation (minutes)			
Mean ± standard deviation	69.35 ±14.71	79.46 ±18.64	0.013 †
Range	50 -99	51 -121	S
Duration of hospital stay (days)			
Mean ± standard deviation	3.35 ±1.05	3.85 ±0.99	0.040 †
Range	2 -5	2 -5	S
Duration of catheterization (days)			
Mean ± standard deviation	3.48 ±1.15	4.11 ±1.27	0.031 †
Range	2 -6	2 -7	S
IPSS			
Mean ± standard deviation	5.32 ±1.90	4.87 ±1.78	0.291 †
Range	2 -9	2 -9	NS
Q max (m/s)			
Mean ± standard deviation	24.32 ±4.64	25.93 ±4.88	0.151 †
Range	17-31	17 -35	NS
PVRU (ml)			
Mean ± standard deviation	113.39 ±55.46	104.22 ±40.83	0.406 †
Range	31 -201	41 -202	NS
Preservation of ejaculation, n (%)	20 (64.5 %)	17 (37.0 %)	0.018 ¥ S

There was no significant difference in average IPSS, Q max and PVRU between TUIP and TURP groups ($P > 0.05$). However, the proportion of patients with preserved ejaculation was significantly higher in TUIP than in TURP groups, 64.5 % vs. 37.0%, respectively ($P = 0.018$).

The current study aimed to compare the outcome of TUIP in comparison with that TURP in selected patients (age < 65 and size of prostate < 30 gram). The results, clearly demonstrated that TUIP was superior to TURP with respect to shorter duration of operation, shorter hospital, and shorter catheterization time in addition to greater proportion of patients with preserved ejaculation. However, the mean IPSS, Q-max and PVRU were better in TURP compared with TUIP but with no statistical significance. It has been found, in previous meta-analysis study including short-term data and long-term data of a number of randomized controlled trials, that TUIP produced comparable results to that of TURP concerning the improvement of lower urinary tract symptoms and improvement in Q max, provided that the sample of patients was selected based on small size prostate with no median lobe involvement [28]. In addition, it has been found that TUIP is associated with less contracture rate of lower bladder neck compared with TURP [29-31]. The efficacy and safety of "Holmium TUIP (Ho-TUIP)" has been validated even in patients on anticoagulant therapy [32, 33]. Long-term stability of symptom relief following TUIP has been documented by previous authors [34, 35]. The TUIP failure in controlling symptoms with the need for re-operation was seen in patients with the preoperative prostate size of > 30 gram [21]. In a previous study, the ejaculation rate dysfunction in patients undergoing TUIP was significantly lesser than that of patients undergoing TURP, provided that those patients had preoperative size of prostate of less than 30 g [25]. These findings support those of the current study. The use of preoperative transrectal ultrasound assessment of prostate size is a key feature in choosing TUIP for selected patients with BPH because it permits accurate size measurement [36]. In conclusion, TUIP was significantly better in comparison to TURP

concerning the shorter duration of operation, littler hospital admission, and shorter duration of catheterization and the ejaculation preservation in optimally selected patients.

Conclusion

One-third of males over 60 have BPH, a chronic, progressing condition. In about 25% of individuals, obstructive BPH symptoms will eventually necessitate surgical intervention. The average age of kidney transplant recipients has been rising recently, and the functional outcomes in the elderly are very positive. Presumably, BPH is becoming more common in the elderly male transplant recipients. The most effective treatment for lower urinary tract symptoms brought on by BPH is currently TURP. TURP is not entirely trouble-free, despite having low death and morbidity rates. TUIP is proved to be significantly better compared with TURP concerning shorter duration of operation, shorter hospital stays, and shorter period of catheterization and preservation of ejaculation in optimally selected patients. The physical properties of 2-[(2,3-dimethylphenyl) amino] benzoic acid and the prepared complexes were listed in Table 1.

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Authors' contributions

All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

Conflict of Interest

The author declared that they have no conflict of interest.

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