Change in urinary symptoms and quality of life in men with benign prostatic hyperplasia after transurethral resection of prostate

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ABSTRACT

The aim of this study was to determine the improvement in symptoms and quality of life in men with Benign Prostatic Hyperplasia (BPH) after transurethral resection of prostate (TURP). Fifty consecutive patients fit for undergoing TURP for BPH were included in this study. All patients were assessed prior to definitive surgical treatment using standardized questionnaires of international prostate symptom score (IPSS) which includes single disease-specific quality of life (QOL) score. Follow up of these patients was done at three months with same questionnaires. Data was analyzed using the statistical package for social sciences (SPSS) for Windows. The mean age and duration of symptom was 68.3 years and 26.7 months respectively. The average volume of prostate was 46.1 cm^3. Preoperative IPSS and QOL score were 23.4 and 5.2 respectively; 56.6% of the score was contributed by obstructive symptoms. At three months follow up, the mean IPSS reduced down to 7.9 and QOL score improved to 1.5. The average change in IPSS and QOL score were 15.6 and 3.6; these changes were statistically significant and correlated with preoperative symptom severity. Most of the patients presented with severe symptom associated with decreased QOL. After TURP, there was significant improvement in IPSS and QOL scores. The improvement was graded as good out come and strongly related to preoperative symptom severity.

Keywords: Benign prostatic hyperplasia, international prostate symptom score, quality of life score, transurethral resection of prostate.

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a common condition among elderly men, with an estimated prevalence of up to 85.0%.[1] BPH manifests as bladder outlet obstruction with a wide range of symptoms varying from mild obstructive or irritative complaints to its complications, such as acute urinary retention, obstructive uropathy and urinary tract infection. However, deterioration of symptoms and urinary flow is usually slow and those serious outcomes are uncommon. The relatively less serious symptoms of frequency, nocturia and incomplete bladder emptying can be very bothersome and may impact substantially on the patient's quality of life.

The primary goal for treating men with clinical manifestations of BPH is to reduce or ideally to relieve bothersome lower urinary tract symptoms.[2] Although the treatment has been dramatically modified during the past decade, transurethral resection of the prostate (TURP) is considered the reference standard in the management of symptomatic bladder out-let obstruction (BOO) secondary to BPH.[3]

The severity of lower urinary tract symptoms (LUTS) associated with BPH can be measured reliably, from the patient's perspective, with a number of validated questionnaires, including Boyarsky score, Madsen Iverson score, American Urological Association (AUA) symptom index and Danish prostatic symptom score. The first World Health Organization consultation on benign prostatic hyperplasia adopted the AUA symptom index with the addition of one quality-of –life (QOL) question and called it the International Prostate Symptom Score (IPSS).[4] In the clinical setting, these questionnaires can be used to assess the severity of symptoms in men with lower urinary tract symptoms and to follow changes in symptoms over time and with treatment. Urinary symptoms are usually related to a subjective decrease in quality of life.[5] Additional questionnaires are also available to measure the impact of LUTS on men's quality of life, which can be improved after treatment. So this study was designed in view of assessing the symptom and quality of life of elderly male population and to evaluate the improvement over these parameters after TURP.

MATERIALS AND METHODS

This prospective clinical study was conducted at B.P Koirala Institute of Health Sciences from January 2004 to January 2005. Fifty patients fit for undergoing TURP for BPH were included. The decision regarding operative treatment was taken by consultant surgeon and was based on the presence of one or the combination of the following indications: severe prostatism (IPSS>20), acute retention, chronic retention, back pressure changes with functional renal impairment, haematuria, low max flow rate (<10 ml/min), increased residual volume of urine

(>100ml) and complications like stones, diverticuli or infection. Those patients having past history of prostatic surgery, prostatic carcinoma, urethral stricture or neuropathic bladder were excluded from this study.

All patients were assessed prior to TURP with clinical history and examination, and interviewed using standardized questionnaires of IPSS which includes single disease-specific QOL score. All the relevant investigations were also noted. The IPSS is a numerical symptom scoring system that grades the severity of seven symptoms based on how frequently each symptom afflicts the sufferer. The scale for each symptom ranges from 0 (symptom never present) to 5 (symptom always present). The seven symptoms are incomplete emptying, frequency, intermittency, urgency, weak stream, hesitancy and nocturia. The disease-specific quality of life question provide a separate quality of life score with a scale ranging from 0 (delighted) to 6 (terrible).

The patients were admitted one day prior to surgery for preoperative evaluation and preparation. They were placed in lithotomy position and a standard TURP carried out by a consultant surgeon using a continuous-flow resectoscope in a video-assisted endourological system.

Follow up of those patients was done at 3 months after surgery using same questionnaires of IPSS and QOL score. Data from filled performs was entered and analyzed using the statistical package for social sciences (SPSS) for windows. Means before and after the surgery were compared by paired 't' test. The level of significance for all tests was set at $p<0.05$.

RESULTS

The mean age and duration of symptoms of patients in this study was 68.3 years and 26.7 months respectively. The average volume of prostate was 46.1±14 cm^3. Among those patients; 7 (14.0%) had already received medical treatment for BPH, 38 (76.0%) had one or more episodes of acute urinary retention and 40 (80.0%) were on indwelling urethral catheter till the time of surgery. All the patients except three were given spinal anesthesia during TURP. The mean duration of resection was 54.3±14.8 min and average prostatic tissue resected was 14±5.7 gm.

Most of the patients had severe symptom with average IPSS of 23.4±2.5 with poor quality of life scoring 5.2±0.6. Out of the total IPSS, 56.6% was contributed by obstructive symptoms (Fig 1). Post operatively, symptom score reduced down to 7.9±2.1 and quality of life improved to 1.5±0.7 (Table-1). The average change in IPSS and QOL was 15.6±3.2 and 3.6±0.9 respectively ($p<0.001$). Obstructive symptoms improved (82.4%) significantly more than irritable symptoms (46.3%) with p value <0.001 (Fig. 1). Most of the patients (94.7%) had change in score by more than 10 units which is regarded as good outcome. When the study population was divided in two groups-one having preoperative IPSS<20 and another with IPSS$\geq$20; the change in IPSS was significantly more for the group having IPSS$\geq$20 (16.2 Vs 9; $p<0.001$). The change in IPSS correlated well with the preoperative IPSS ($r=0.74$, $p<0.001$) and QOL score ($r=0.57$, $p<0.001$) but not with age, duration of resection or resected prostatic weight. Similarly it had no correlation with other parameters that being studied (Table-2).

DISCUSSION

LUTS from BPH is a common disorder that affects the majority of men above 50 years of age significantly affecting the QOL of patients.[6] The majorities are worried and concerned about their bothersome urinary symptoms and relief of symptoms and improvement in QOL are the desired outcome.[7] For most of the patients having severe symptoms and/or with complications due to BPH, TURP is still considered a "gold standard" procedure.[8]

This study showed that most of the patients presented lately with severe symptoms (IPSS>20) associated with poor quality of life. Around 80.0% of the patients had combination of one or more complications including acute urinary retention, chronic retention, haematuria or obstructive uropathy requiring indwelling Foley's catheter till the time of surgery. Relieving the obstruction by resection of enlarged adenoma significantly improves the outcome; but the resected tissue weight had no correlation with the improvement (Table-2). Similarly, Hakenberg *et al* [9] confirmed that there were no significant correlation between resected prostatic volume with symptom improvement after TURP, bother scores and residual urinary volume postoperatively.

IPSS has been accepted as a yardstick in measuring the severity of symptoms. Change in the preoperative (at the time of presentation) and postoperative (after recovery from operation) IPSS indicates effectiveness of the surgery-performed in a patient.[4] In our study, preoperative IPSS of patients was 23.4 which is slight higher as compared to other series that ranges from 19.5–22.[3,4,10-13] After TURP, there were significant improvement in total IPSS, all IPSS symptoms and quality of life (Table-1). The obstructive symptoms (incomplete emptying, intermittency, weak stream and straining) improved the most, while irritative symptoms (frequency, urgency and nocturia) improved less, indicating that irritative symptoms are less responsive to TURP (Fig. 2). Bruskewitz *et*

al[14] assessed long term (3 year) effect of TURP on obstructive and irritative symptoms and confirmed that TURP had a larger effect on voiding than on filling symptoms.

We found that most of the patients had improvement of IPSS by more than 10 units and those with greater preoperative IPSS (>20) gained the most symptomatic benefit. Chuang *et al*[4] showed that decrease in IPSS of more than 7 points predicts subjectively perceptible symptomatic improvement with high sensitivity while good outcome was defined as decrease in IPSS by 10 or more which corresponded to an improvement of approximately 3 points in QOL. Since the change in IPSS strongly correlates with preoperative IPSS and QOL score, the preoperative IPSS seems to be the best predictor of postoperative symptomatic outcome. Hakenber*g et al*[15] reported that a threshold for transurethral prostatectomy of a preoperative IPSS of 17 would be more appropriate.

This study concluded that urinary symptoms and quality of life in patients with BPH significantly improved after TURP and those patients who were having severe symptoms gained the most; thus preoperative IPSS can be used as a predictor of postoperative outcome.

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Table-1: Change in International prostate symptom score (IPSS) and quality of life (QOL) after transurethral resection of prostate

IPSS	Mean±SD (range)			*P*
	Before	After	Change	
Incomplete emptying (IE)	3.3±0.8 (2-5)	0.9±0.6 (0-2)	2.4±0.9 (0-4)	<0.001*
Frequency (F)	3.0±0.7 (2-5)	1.5±0.5 (0-2)	1.5±0.9 (0-3)	<0.001*
Intermittency (I)	2.6±1.1 (0-5)	0.2±0.3 (0-2)	2.4±1.1 (0-5)	<0.001*
Urgency (U)	2.9±0.9 (0-5)	1.3±0.6 (0-2)	1.6±1.1 (2-4)	<0.001*
Weak stream (W)	3.8±0.8 (1-5)	0.9±0.8 (0-3)	3.0±1.2 (0-5)	<0.001*
Straining (S)	3.4±0.9 (0-5)	0.5±0.6 (0-2)	2.9±0.9 (1-5)	<0.001*
Nocturia (N)	4.1±0.9 (1-5)	2.6±0.6 (2-4)	1.5±1.0 (2-3)	<0.001*
Obstructive (IE+I+W+S)	13.2±1.7 (9-17)	2.4±1.5 (0-7)	10.9±2.2 (5-15)	<0.001*
Irritative (F+U+N)	10.1±1.5 (6-13)	5.4±1.1 (3-7)	4.7±1.8 (1-7)	<0.001*
Total IPSS	23.4±2.5 (15-29)	7.9±2.1 (5-14)	15.6±3.2 (4-20)	<0.001*
QOL	5.2±0.6 (4-6)	1.5±0.7 (0-3)	3.6±0.9 (2-5)	<0.001*

* p Value <0.05 (Significant)

Table-2: Correlation of change in International prostate symptom score (IPSS) with various parameters

	Pearson's correlation coefficient (r)	*p*
Age (years)	0.019	0.909
Duration of symptoms (months)	0.024	0.888
Prostate volume (cm^3)	0.045	0.789
Duration of resection (min)	0.040	0.813
Resected weight of prostatic tissue(gm)	0.068	0.685
Catheter removed (day)	0.221	0.183
Pre-operative IPSS	0.744	<0.001*
Pre-operative QOL	0.578	<0.001*
Post-operative IPSS	0.539	<0.001*
Post-operative QOL	0.302	0.066

* p Value <0.05 (Significant)

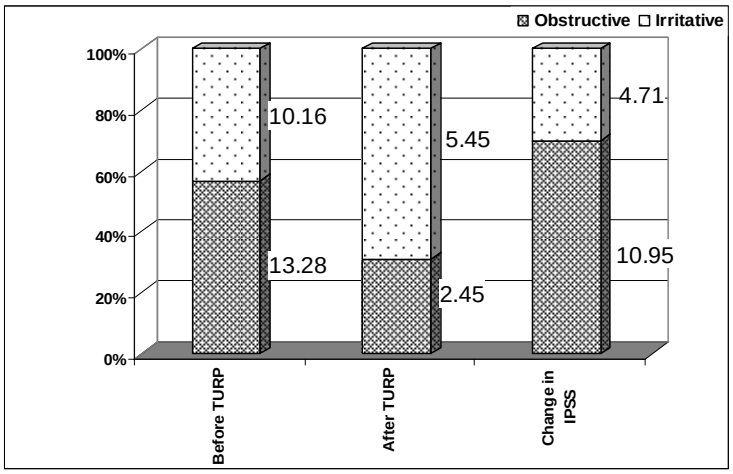

Fig.1. Proportion of obstructive and irritative symptoms in International prostate symptom score before and after transurethral resection of prostate, and in changed score.

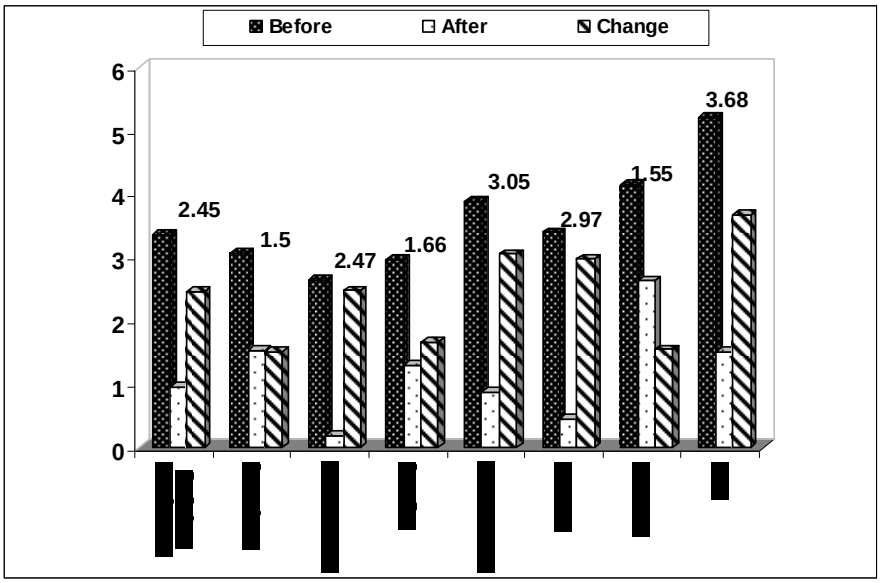

Fig.2. International prostate symptom score and quality of life before and after transurethral resection of prostate