

A COMPARATIVE STUDY OF MEDICAL VERSUS SURGICAL MANAGEMENT OF BENIGN PROSTATIC HYPERPLASIA

ASHIQ A RAVAL¹ & ABID RAVAL²

¹Consultant Urologist, Jaslok Hospital, Mumbai, Maharashtra, India

²Resident, D.Y. Patil Medical College & Hospital, Navi Mumbai, Maharashtra, India

ABSTRACT

Introduction

Benign Prostatic Hyperplasia (BPH) is a disease suffered almost universally by aging men. Last 25 years has seen a phenomenal improvement in the treatment options of BPH, which includes both medical and surgical therapy. Medical treatment has come to stay because of the limitations of prostate surgery in elderly persons with various co-morbidities or unwilling for surgery. However surgery still remains best treatment of choice, with Transurethral Resection of the Prostate (TURP) being the gold standard procedure.

Materials and Methods

A total of 100 consecutive patients attending the outpatient department of Surgery of a tertiary care institute of Mumbai with symptom suggestive of BPH were selected for study after taking prior informed consent. Out of 100 patients, 50 were chosen for surgery in the form of TURP and rest 50 were considered for medical treatment (α -1 antagonists). All the Patients were followed up for 12 months and improvement was noted in the form of International Prostate Symptom Score (IPSS) and Peak Urinary Flow Rate (PUFR).

Results

The mean age of patients in medical treatment group was 66.40 ± 9.27 years and in surgical treatment group was 64.72 ± 8.38 years. The Mean baseline IPSS score and PUFR (ml/s) of the patients in medical group was 12.4 ± 1.65 and 10.0 ± 0.87 while the mean values after 12 months follow up period were 6.5 ± 1.79 and 14.6 ± 1.15 . The Mean baseline IPSS score and PUFR (ml/s) of the patients in surgical group was 19.5 ± 3.7 and 8.84 ± 0.86 while the mean values after 12 months follow up period were 2.32 ± 0.89 and 17.4 ± 1.51 . The results showed significant improvement in patients after both medical and surgical management ($p < 0.01$). On comparing baseline and follow up IPSS scores and PUFR values of both groups, we found more significant improvement ($p < 0.01$) in patients after surgical management.

Conclusions

Medical treatment should be offered to those patients who are not willing or are unfit for surgery or having early symptoms of prostatism. In spite of the associated post-operative morbidity in few elderly patients after surgery, of all treatment options, prostate surgery offers the best chance of symptomatic improvement with TURP being the gold standard procedure.

KEYWORDS: Benign Prostatic Hyperplasia, Medical Management, Surgical Management

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a disease suffered almost universally by aging men. With age the prostate gland either atrophies or hypertrophies, producing various types of bladder outlet symptoms in a significant number of cases. Based on the clinical definition of BPH as given by Garraway¹ which includes an enlarged prostate (>20gm) and either an elevated symptom score 11 or higher (on a scale of 0-48) or a reduced peak urinary flow rate (less than 15ml/ sec). The prevalence of clinically defined BPH ranged from approximately 14% for men in their forties to 40% for men in their seventies.

Recent study shows that increased number of prostate blood vessels allow gland to enlarge thus explaining why severe urological symptoms develop more often in smokers, who increasingly undergoes prostate surgery.²

Last 25 years has seen a phenomenal improvement in the treatment options of BPH, which includes both medical and surgical therapy. Until lately prostatectomy was only widely acceptable treatment of BPH. Better understanding of pathophysiology of BPH, which produces symptoms from both, the static (anatomic) and a dynamic (functional) component, has led to the emergence of medical management with promising results.

Caine et al.³ gave concept of dynamic component which is related to the level of sympathetic stimulation of alpha receptors in the (a) prostatic capsular muscle (2) prostatic adenoma (c) bladder base. This suggested the possibility of treatment with alpha adrenergic antagonists.

The development of BPH, as found by Coffey and Walsh⁴ is an androgen dependent process. Peter and Walsh⁵ demonstrated that androgen suppression causes reduction in prostate volume thus decreasing static component of bladder outlet obstruction resulting in BPH. This is the rationale for the use of 5- α reductase inhibitors and various other anti androgens.

Medical treatment has come to stay because of the limitations of prostate surgery in elderly persons with various co-morbidities or unwilling for surgery. However surgery still remains best treatment of choice, with Transurethral Resection of the Prostate (TURP) being the gold standard procedure.

MATERIALS AND METHODS

A total of 100 consecutive patients above 40 years of age attending the outpatient department of Surgery of a tertiary care institute of Mumbai with symptom suggestive of BPH were selected for study after taking prior informed consent. A complete history and physical examination, including neurological examination especially in diabetic patients, to rule out any evidence of diabetic neuropathy was done for all the patients.

The men's symptoms were assessed by International Prostatic Symptom Score (IPSS) System which assesses the occurrence of seven symptoms characteristic of benign prostatic hyperplasia, during the preceding week each scored on a scale from 0 (absent) to 5 (severe). The total score reflects the overall severity of the patient's condition (1-7, mild; 8-19, moderate; 20-35, severe).⁶

Enlarged prostate was confirmed on digital rectal examination, which was further confirmed by 'transabdominal and transrectal ultrasonography. This determined the prostatic volume, post-void residual urine volume and gave information about the 'bladder condition and status of upper urinary tract.

Routine tests of hematologic value, blood urea and serum creatinine were measured. Urine routine microscopy and culture & sensitivity were performed to rule out urinary tract infection. Serum prostate specific antigen (PSA) was measured for patients receiving finasteride and where there was a suspicion of malignancy. Trucut biopsy was performed in suspected cases and where serum PSA was between 4 to 9.9ng/ml in order to be enrolled in the study. Baseline Peak Urinary Flow Rates (PUFR) were measured with a minimum voided volume of 150 ml. Chest X-ray, ECG, HIV, testing was done for patients considered for surgery.

Out of 100 patients, 50 were chosen for surgery in the form of TURP and rest 50 were considered for medical treatment (α -1 antagonists). Patients chosen for medical treatment had early symptoms of prostatism and had lower grades of prostatic enlargement. Men considered for surgery had more severe IPSS scores, higher grades of prostatic enlargement or absolute indications for surgery.

All the Patients were followed up for 12 months and improvement was noted in the form of IPSS score and PUFR. Data was analysed using SPSS software ver. 17 and the groups were compared using Mann-Whitney test (IPSS score) or student's t-test (PUFR) with p-value of < 0.05 taken as significant.

RESULTS

Most of the cases were seen in the age group of 61 to 70 years (Table 1). There was no specific difference in age incidence between the medical and surgical treatment group.

The Mean baseline IPSS score and PUFR (ml/s) of the patients in medical group was 12.4 ± 1.65 and 10.0 ± 0.87 while the mean values after 12 month follow up period were 6.5 ± 1.79 and 14.6 ± 1.15 (Table 2). The results showed significant improvement in patients after medical management ($p < 0.01$).

The Mean baseline IPSS score and PUFR (ml/s) of the patients in surgical group was 19.5 ± 3.7 and 8.84 ± 0.86 while the mean values after 12 month follow up period were 2.32 ± 0.89 and 17.4 ± 1.51 (Table 4). The results showed significant improvement in patients after surgical management ($p < 0.01$).

On comparing baseline and follow up IPSS scores and PUFR values of both groups, we found more significant improvement ($p < 0.01$) in patients after surgical management (Table 5).

DISCUSSIONS

This study was designed to compare the efficacy of medical and surgical management in men with symptomatic benign prostatic hyperplasia. A total of 100 patients were selected, 50 each were included in the medical and surgical treatment groups. Specifically, males with absolute indications for surgery were excluded from the medical treatment group.

Lepor H et al. ⁷ reported in their study on the efficacy of α -1 antagonists in the treatment of BPH that the mean age of patients was 63.9 ± 1.0 years. A similar study by Lepor H and Cowles R ⁸ on efficacy of TURP in men with BPH, reported that the mean age of patients was 66.6 ± 1.2 years. In our study the mean age of patients in medical treatment group was 66.40 ± 9.27 years, and the mean age in surgical treatment group was 64.72 ± 8.38 years.

Lepor et al. ⁹ in an open label extension study of efficacy and safety of α -1 antagonists, demonstrated that, at all follow up intervals, the group mean Boyarsky symptom scores were significantly lower than at baseline. From 3 months

onwards, the improvement ranged from 4 to 5.4 points. He also reported that, at all follow up visits, the group mean PUFRR was significantly higher than at baseline values and the improvement ranged from 2.3 to 4.0 ml/sec. Frabricius and associates¹⁰ reported a randomized placebo withdrawal study evaluating α -1 antagonists for men with symptomatic BPH. Overall improvement in symptom score was 68% and improvement in PUFRR was 54%. Hedlund et al.¹¹ reported in a study regarding the effects of medical management in patients with BPH. He noticed a significant increase in the mean urinary flow rate (from 2.6ml/sec to 3.7ml/sec, $p < 0.01$), the maximal urinary flow rate also increased from 4.9 ml/ sec to 6.9 ml/sec ($p < 0.01$). Kirby et al.¹² reported in another study on use of medical management in BPH patients, a significant improvement in the PUFRR (from 8 ml/ sec to 13 ml/sec) in the drug group in comparison to the placebo group ($p < 0.05$). Gormley and colleagues¹³ in North American Finasteride trial reported that the group mean % change in IPSS at 12 months in the 5 mg group was 21%, the group mean change in PUFRR was 22%. Herbert Lepor et al.⁷ in a study found that the absolute mean change in IPSS at 12 months was a decrease in 3.2 points in the medical management group, and the absolute mean change in PUFRR at 12 months was 1.6 ml/sec. In our study, the mean improvement in Medical management group in PUFRR was 4.6 ml/ sec (46% improvement) and the mean decrease in IPSS was 5.9 points (47.6% improvement).

Lepor H¹⁴ reported on the efficacy of TURP in men with symptomatic BPH. He found that there was 88% decrease in obstructive score and 65% decrease in irritative score with an overall improvement of 76.5%. The % improvement in PUFRR was 108%. Lepor H and Machi GM showed a mean improvement in AUA-6 Symptom scores of -13.3 for TURP, and a mean increase in PUFRR of 7.0 ml/Sec.¹⁵ In our study, the mean decrease in IPSS in TURP group was 17.2 points (88.14% improvement). The mean improvement in PUFRR in this group was 8.6 ml/sec (96.8% improvement).

In both groups of treatment, there was an improvement in IPSS and PUFRR. However when the % improvement in TURP group was compared with improvement in medical treatment group, the difference was highly significant ($p < 0.001$) and was in favour of TURP.

CONCLUSIONS

In this study 100 patients were selected, out of which 50 were offered medical treatment and rest 50 were taken up for surgical treatment in the form of TURP. The IPSS and PUFRR were the main parameters which were compared between the two study groups. Though there was clinically significant improvement in the IPSS scores and PFR in the medical treatment group but when compared to TURP the difference was highly significant ($p < 0.001$) and was in favour of TURP.

We thus conclude that medical treatment should be offered to those patients who are not willing or unfit for surgery or having early symptoms of prostatism. In spite of the associated post-operative morbidity in few elderly patients after surgery, of all treatment options, prostate surgery offers the best chance of symptomatic improvement with TURP being the gold standard procedure. Surgical excision has been the cornerstone in the management of BPH for nearly a century. In the last 50 years TURP has become established as the procedure of choice in most patients with Benign Prostatic Hyperplasia.

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APPENDICES

Table 1: Age Distribution of Study Subjects

Age Group (Years)	Medical Group	%	Surgical Group	%
< 50	3	6.0%	2	4.0%
51-60	11	22.0%	12	24.0%
61-70	20	40.0%	25	50.0%
71-80	14	28.0%	10	20.0%
> 80	2	4.0%	1	2.0%
Total	50	100.0%	50	100.0%

Table 2: IPSS and PUFRR Values of Medical Group

IPSS Score			
Medical Group	Mean	Std. Deviation	p-Value
Baseline	12.4	1.65	< 0.01
1 year follow up	6.5	1.79	
PUFR (ml/s)			
Medical Group	Mean	Std. Deviation	p-Value
Baseline	10.0	0.87	< 0.01
1 year follow up	14.6	1.15	

Table 3: IPSS and PUFRR Values of Surgical Group

IPSS Score			
Surgical Group	Mean	Std. Deviation	p-Value
Baseline	19.5	3.7	< 0.01
1 year follow up	2.32	0.89	
PUFR (ml/s)			
Surgical Group	Mean	Std. Deviation	p-Value
Baseline	8.84	0.86	< 0.01
1 year follow up	17.4	1.51	

Table 4: Comparison of IPSS and PUFRR Values of Both Groups

Group		Medical	Surgical	p-Value
IPSS Score (Mean \pm SD)	Baseline	12.4 \pm 1.65	19.5 \pm 3.7	< 0.01
	1 year follow up	6.5 \pm 1.79	2.32 \pm 0.89	< 0.01
PUFR (ml/s) (Mean \pm SD)	Baseline	10.0 \pm 0.87	8.84 \pm 0.86	< 0.01
	1 year follow up	14.6 \pm 1.15	17.4 \pm 1.51	< 0.01