

ROLE OF TRANSABDOMINAL ULTRASOUND IN EVALUATING PATIENTS WITH ACUTE URINARY RETENTION (AUR) DUE TO BENIGN PROSTATIC HYPERPLASIA (BPH)

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Abstract :

Acute retention of urine (ARU) is one of the most serious complication of benign prostatic hyperplasia (BPH). However there is no consensus on the management of ARU due to BPH. In this study we prospectively evaluated 58 patients with acute urinary retention in different hospitals in Dhaka city due to BPH by a simple noninvasive method based on intravesical prostatic protrusion (IPP) using transabdominal ultrasound. Catheterization with an indwelling catheter was done at hospital admission. History taking and physical examinations were done in all cases. Transabdominal ultrasound was done to assess the prostatic volume and intravesical prostatic protrusion (IPP). IPP were divided into three grades. The voiding trial was judged to be unsuccessful if the patient failed to reestablish satisfactory micturition. After catheter removal in this study 34 patients failed to void well. There were more patients with higher grade IPP in the group with failure than in the group with a successful trial off catheter. These patients were followed up for one year. This study reveals that the greater the protrusion, the more severe the obstruction, Grade 3 IPP patients are more likely to have recurrent urinary retention. The degree of IPP influences the outcome.

Key words: ultrasound, urinary retention, prostatic hyperplasia, intravesical prostatic protrusion.

Introduction:

Benign prostatic hyperplasia (BPH) is the most common benign tumour in men and its incidence is age related. Fifty percent of men aged 51 to 60 and over 90% in men older than 80 present with lower urinary tract symptoms due to BPH.¹ Patients with BPH may present with acute retention of urine (ARU) which is a common urological emergency for hospital admission. These patients are usually immediately managed by urethral catheterization. But there is still debate regarding the management strategy of these patients with ARU due to BPH². Previously prostatectomy was regarded as the gold standard treatment for patients with BPH who

developed acute urinary retention. But studies show that a significant number of patients voided well at catheter removal and they did not require any surgical intervention². The management of patients with BPH has undergone rapid change in the last few years as a result of better understanding of the natural history of BPH and the easy availability of ultrasound. In our clinical practice transabdominal ultrasound of KUB and prostate is routinely done to assess the patients with lower urinary tract symptoms (LUTS) due to BPH. In this study we tried to find out the correlation of intravesical prostatic protrusion (IPP) with bladder outlet obstruction due to BPH and the role of IPP in the management strategy of patients with ARU due to BPH.

Methods:

Between July 2008 to Dec 2009, 58 male patients presenting with an initial ARU episode suggestive of BPH were included in this study. This study was carried out in National Institute of Kidney diseases and urology Hospital (NIKDU), Sir Salimullah Medical College, Mitford Hospital, and different private hospitals of Dhaka city. Patients with prostatic cancer, recurrent or chronic urinary retention, urinary tract infections, bilateral hydronephrosis, renal impairment, or neurological diseases were excluded. History taking and physical examinations were done in all cases. DRE was done to see the consistency of prostate. Transabdominal ultrasound was done to assess the prostatic volume and intravesical prostatic protrusion (IPP). The degree of protrusion was graded by measuring from the tip of the protruding prostate perpendicular to the bladder circumference at the prostate base in the midsagittal plane². Patients were divided into three groups according to IPP grade (Table-1). Grading was done as follows, Grade 1, 1-5mm or less, Grade 2 greater than 5mm to 10mm and Grade 3 more than 10mm^{2,3}. The voiding trial was judged to be unsuccessful if the patient failed to reestablish satisfactory micturition as defined by post-void residual urine greater than 100 ml and a maximum flow rate of less than 10 ml/sec. Statistical analysis was performed between groups using the chi-square test and

a P value of <0.05 was considered statistically significant.

Table-I

Distribution of patients according to IPP grade (n=58)

Group of the patients	Grade of IPP	Number of Pts.
Group 1	Grade 1	15
Group 2	Grade 2	16
Group 3	Grade 3	27

Results:

A total of 58 patients were included in the study. Mean age of the patient was 63 years ranging from 50 to 80 years. Average prostate volume was 45 gram. After catheter removal, 24 patients voided well with a flow rate of more than 10ml/sec and residual urine less than 100ml while 34 patients failed to void well. IPP grade was a significant factor between those who had a successful and failure voiding. The failure rate of trial voiding was 40% (6 of 15 cases), 57% (9 of 16 cases), 71% (19 of 27 cases) for grades 1 to 3 prostate respectively (Table:2). This difference was significant when comparing grades 1 and 3 (p<0.05). There were also significant more patients with higher grade IPP in the group with failure than in the group with a successful trial off catheter.

Table-II

Distribution of patients according to voiding pattern after removal of catheter (n=58).

Patient Group	Number of Pts	Successful TWOC	Failed TWOC	Failure rate
Grade 1 IPP	15	9	6	40%
Grade 2 IPP	16	7	9	57%
Grade 3 IPP	27	8	19	71%

At six months follow up, 3 patients (1 in grade 2 and 2 in grade 3) and at one year follow up 2 patients (grade 3) had recurrent urinary retention after an initial successful trial without catheter. No patient in the Grade 1 group had recurrent retention. There was no significant age difference between the success and failure.

Discussion:

Acute urinary retention due to BPH is a common urological emergency⁴. However there is no consensus on the management of this urological emergency². At

some centres trial without catheter is done to assess spontaneous voiding ability while at others an episode of ARU is an indication for prostatectomy without the need of trial without catheter. In this series, 33%(19 out of 58) patients did not require surgery at 1 year follow up. Studies show that 23% to 55% of patients in ARU had successful Trial without catheter (TWOC).⁴⁻⁹ In this study IPP was a significant factor that predicted the outcome. The failure rate of TWOC based on IPP Grade was 40%, 57% and 71% for grade 1 to 3 respectively. This is similar with the study done by Tan et al² In this study it is noted that the greater the intravesical protrusion, the more severe the obstruction. Grade 3 patients are more likely to have recurrent urinary retention. On the other hand 9 patients (60%) with a grade 1 prostate achieved successful TWOC at a follow up of up to one year.

Conclusion:

IPP measurement can easily be obtained with transabdominal ultrasound scan in the outpatient department to evaluate patient with ARU due to BPH. Considering the findings of the present study and the study which correlates with the study it can be concluded that IPP is a useful clinical predictor for evaluating the success of a voiding trial following ARU. The degree of IPP influences the outcome. IPP can be used to direct the appropriate patients to more aggressive treatment strategies such as surgery¹¹.

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