DISCUSSION
The symptoms of BPH are believed to be the results of at least three different components

(1) Static component
(2) Dynamic component
(3) Detrusor component.

The static component is due to the formation and enlargement of the nodules in the glandular tissue of the prostate. The marked increase in the size of the nodules that occurs in the elderly men is limited to the transition zone and the periurethral glandular tissue adjacent to the urethra.\textsuperscript{8,13,15}

The dynamic component involves smooth muscle tone in the prostate, prostatic capsule and bladder neck. When an enlarged prostate causes obstruction to bladder outflow, increasing muscle tone will cause corresponding variations of the degree of obstruction.\textsuperscript{12}

A common finding in BPH patients and especially in those who primarily have irritative symptoms is the presence of impaired bladder contractility and detrusor instability.\textsuperscript{14} The bladder responds to obstruction with an increased incidence of uninhibited detrusor contractions and with a loss of contractile ability.\textsuperscript{18} Some of the symptoms associated with BPH, however might, in fact, be symptoms of an ageing bladder rather than secondary symptoms to subvesical obstruction.
This hypothesis is supported by Van Maastrigt (1992)\textsuperscript{16}. Who reported in 225 males with mixed pathology that impaired detrusor contractility was significantly associated with increasing age\textsuperscript{18}.

Within the frame work of current understanding of histologic BPH, symptoms of prostatism and role of urodynamics as a diagnostic tool to assist in therapeutic management still remains to be defined. However, it is clear that urodynamics has provided an understanding into the inter-relationship between these three processes, presently urodynamics is best suited to diagnose bladder outlet obstruction. Current debate focuses on establishing widely accepted criteria for bladder contractility and urethral resistance. However it should be emphasized that meaningful urodynamic information can only be interpreted when carefully obtained measurements are done. This concept transcends differences in urodynamic equipments\textsuperscript{19}.

Hence urodynamic studies are almost accepted as essential in the BPH patients to design therapy correctly and for improvements in the symptoms after therapy.

Compliance is an important factor and indicates the change in volume for change in intravesical pressure. As bladder wall accommodates large volume with no change in intraluminal pressure, the compliance become higher.
Compliance reflects ability of bladder wall to expand to the capacity with minimal change in intravesical pressure. Volume increments affects intravesical pressure and ultimately wall tension thus altering compliance.

Simple computation of compliance has involved a ratio expressed as a change in bladder volume in millilitre during filling divided by bladder pressure in centimetre of water\(^{20}\).

Total bladder capacity is an indirect reflection of compliance but it does not take into account bladder or wall tension changes\(^{20}\).

It is estimated that in BPH patients bladder instability will develop in 50 to 60% of patients and that in most but not in all patients this disorder will resolve after treatment.

No simple statement can be made about in the patients of urinary obstruction and stasis. The outcome depends on cause, site, degree and duration of obstruction. The results of therapy in clinical BPH patients are assessed through the improvement in flow rate. It is well known fact that some of the patients despite adequate removal of obstructive element, fail to improve on flow rates.
The reasons are though not exactly known but they are definitively because of the changes in bladder which has resulted due to prolonged obstruction including decrease in compliance. Hence the evaluation of compliance in BPH patients before surgery assures a greater significance.

Since standard cystometry designed to meet the above objectives is not easily available, cost and place inhibitive there is a need to design an improvised cystometry in our setup.

The International Continence society committee for standardization of terminology has defined bladder compliance as a change in volume for change in pressure\textsuperscript{7}.

Anderson (1976)\textsuperscript{8} distinguished between bladders of high, normal and low compliance and proposes value of 150, 50 and 5 respectively.

A study of 100 normal cystometries was undertaken to establish compliance values.

This work was an attempt to establish normal values for bladder compliance by water drip cystometry. Cystometry was considered normal if (1) residual urine was below 50 ml, (2) first sensation of desire to void took place between 150 and 250 ml of filling (3) bladder capacity was between 300 and 600 ml. and (4) the non inhibited contractions were absent\textsuperscript{1,2,3,4,5,6,9}.
All cystometries were performed with patients in supine position, the bladder were filled with normal saline at room temperature at a rate of approximately 30ml/minutes. Maximum cystometric capacity (the point of bladder pressure measurement) was established by patients strong desire to void⁷. In cases where voluntary detrusor contractions occurred, the patient’s strong desire to void manifested itself prior to contraction so the intravesical pressure used for calculation of compliance always represented a passive distension.

The compliance was calculated by dividing maximum bladder capacity expressed in millilitres by intravesical pressure expressed in centimeters of water¹¹.

Mean compliance was 55.71±27.37 (SD). Assuming normal distribution of values, this indicated that approximately 60% of population would have bladder compliance between 28 and 83, if one standard deviation were used 95% of normal population would have compliance between 1 to 110.

This study shows clearly that one cannot introduce rigid values to differentiate between bladder of low and normal compliance. The value of 5 proposed by Anderson as a cut off point for low compliance bladder falls within a range of normal values according to this study¹¹.
In a study, which seems to indicate that while correlation between bladder capacities in 75 normal (repeated) cystometries was acceptable, the correlation between compliances of same bladders was absent, indicating poor reproducibility\textsuperscript{10}.

**Present Study**

The improvised cystometry as already discussed in material and methods was carried out in 61 patients diagnosed as benign prostatic hyperplasia, who were admitted to M.L.B. Medical College, Hospital, Jhansi between 1998 to 2000 and patients were divided into 3 subgroups according to IPSS as mild, moderate and severe.

The compliance was calculated. In mild group of patients, the mean compliance was 44.11, in moderate it was 21.90 and in severe group it was 17.54. So, it can be concluded from the present study that as severity of bladder outlet obstruction (BPH) increases, the compliance of bladder decreases.

The simplest urodynamic method to determine whether obstructive uropathy (BPH) is serious enough to demand treatment, is the measurement of bladder compliance\textsuperscript{17}.
The incidence of altered bladder compliance in a population with BPH diagnosed by symptoms and flow rates is unknown but it must be low. The compliance data in the present study were gathered from patients who presented with azotemia and large residual urine\textsuperscript{17}.

In a study, a significant correlation was found in between maximum isometric contraction pressure and severity of obstruction in 168 patients. The proportion of poor compliance (<30 ml/cm of water) was lowest in the normal group. A consistent decrease in compliance does not appear to be a consistent finding in the patients with outlet obstruction, although proportion of patients with poor compliance is higher in the group with obstruction than in those with normal urodynamic findings\textsuperscript{20}.

Among the cystometric parameters investigated, low compliance was most relevant to clinical features of BPH and had some predictive value for the outcome after prostatectomy\textsuperscript{21}. 

39