

RELATIONSHIP BETWEEN PROSTATE VOLUME AND IPSS IN AFRICAN MEN WITH PROSTATE DISEASE.

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Abstract.

Background: Most frequently encountered diseases affecting the prostate include benign prostatic hyperplasia, prostate cancer and prostatitis. Lower urinary tract symptoms (LUTS), including voiding, storage, and post-micturition symptoms, are highly prevalent in men with prostate diseases. This study is aimed at determining the relationship between prostate volume and lower urinary tract symptoms in African men with prostate diseases using the International prostate symptom score as a tool.

Methodology: The study was conducted among 103 men with lower urinary tract symptoms due to prostate disease, who presented at the outpatient department of Jos University teaching hospital between January 2013 and December 2013. The men were evaluated and categorized according to prostate disease. The IPSS of the men were obtained while prostate volume was determined using transabdominal ultrasonography.

Results: During the period January 2013 to December 2013 about 103 men were enrolled into the study. The mean age of the patients was 62.6yrs (range 21 - 85yrs). Eighty patients (77.7%) had benign prostatic hyperplasia, 20 men had Carcinoma of the Prostate (19.4%) while 3 patients had prostatitis. The mean total IPSS was 15.3 (range 3 – 34). Seventy-two of the men, representing 69.9% had moderate symptoms while the mean prostate volume was 57.8ml (range 20 – 195mls). The Pearson correlation between prostate volume and IPSS = 0.13 with a p-value of 0.18.

Conclusion: This study illustrates that there's no significant relationship between prostate volume and International prostate symptom score in African men with prostatic disease.

Key words: Prostate diseases, prostate volume, International Prostate Symptom Score.

INTRODUCTION

Most frequently encountered diseases affecting the prostate include, benign prostatic hyperplasia, prostate cancer and prostatitis. Inflammation of prostate gland is called Prostatitis, characterized by urinary frequency, dysuria, body aches and sometimes fever. Prostatitis may be infective and non-infective.

Benign Prostatic Hyperplasia or Nodular Hyperplasia of the prostate is the non-malignant adenomatous overgrowth of prostate gland. It is characterized by hyperplasia of prostatic stromal and epithelial cells, resulting in the formation of large discrete nodules in peri-urethral region of prostate.

Prostate cancer is mainly adenocarcinoma. The histology of prostate cancer was 100% adenocarcinoma in Lagos. It is the most commonly diagnosed cancer among Nigerian men'. The hospital incidence was 127/100,000.

Lower urinary tract symptoms (LUTS), including voiding, storage, and post-micturition symptoms, are highly prevalent in men with prostate diseases. The AUA-7 symptom index has been adopted by the World Health organization (WHO) as the International Prostate Symptom Score (IPSS). On validation, the AUA-7 index has been shown to have excellent test-retest reliability and is internally consistent.

The international prostate symptom score (IPSS) is widely used to assess the severity of lower urinary

tract symptoms (LUTS) in men with bladder outlet obstruction (BOO) as a result of prostate diseases.

The IPSS consists of seven questions that deal with voiding symptoms (incomplete emptying, intermittency, weak stream and straining to void) and storage symptoms (frequency, urgency and nocturia).

Based on symptom index the scores are graded according to severity into three subclasses for the resulting total score: mild (IPSS 0-7), moderate (IPSS 8-19) and severe (IPSS 20-35) symptoms.

The aim of this study is to establish if there is any relationship between prostate volume and International Prostate symptom score in African men with prostate disease.

MATERIALS AND METHODS

This was a prospective study of men with newly diagnosed prostatic disease who presented at the outpatient department of Jos University teaching hospital between January 2013 and December 2013

Men with LUTS due to prostate diseases were requested to complete the IPSS comprising the following questions: Q1 – incomplete emptying, Q2 – frequency, Q3 – intermittency, Q4 – urgency, Q5 – weak stream, Q6 – straining, Q7 – nocturia, (each question is scored 0- 5, maximum total score is 35). Study subjects who were unable to complete the questionnaires on their own were assisted by a doctor.

A full medical history was obtained and physical examination, digital rectal examination (DRE), urine microscopy, culture and sensitivity and prostate-specific antigen (PSA) were assayed. Men with suspicious prostate and elevated prostate specific antigen had prostate biopsy to confirm prostate cancer.

Prostate volume was estimated using transabdominal ultrasonography. The measurement was done by computing the ellipsoid formula which calculates the size by multiplying the largest anteroposterior height (H), transverse width (W), cephalocaudal length (L) by a constant. $(H \times W \times L \times \pi/6)$.

Pearson correlation (r) was used to evaluate the correlation between prostate volume and IPSS.

The exclusion criteria of this study were the use of medications affecting prostate growth, such as 5- α -reductase inhibitors and antiandrogens; use of α 1 inhibitors, the presence of neurogenic bladder dysfunction and a previous surgical procedure related to prostate disease.

RESULTS

One hundred and three men were enrolled into the study.

The mean age of the men was 62.6yrs (range 21 – 85yrs).

Eighty men (77.7%) had benign prostatic hyperplasia; twenty men had adenocarcinoma of the prostate (19.4%) while three men had Prostatitis (2.9%).

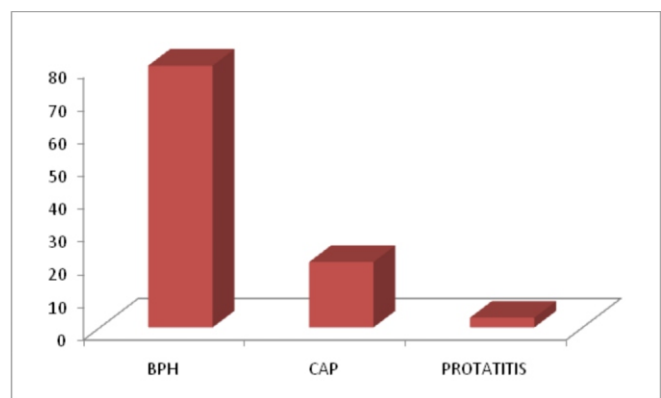


Figure 1: Bar chart showing distribution of Prostate diseases.

The mean total IPSS was 15.3 (range 3 – 34).

Table 1: showing severity of IPSS and there percentages

Severity of symptoms	Number of patients	Percentage
Mild	8	7.8%
Moderate	72	69.9%
Severe	23	22.3%

The mean prostate volume was 57.8ml (range 20ml – 195ml).

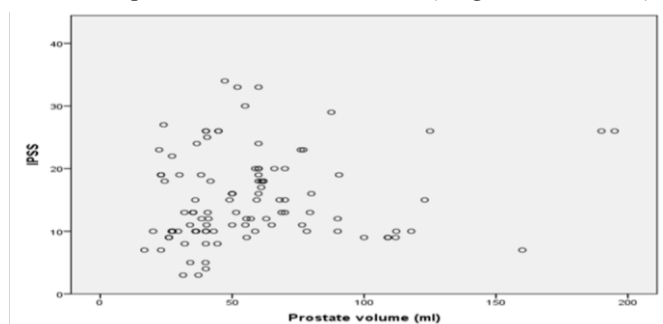


Figure 2: Scatter plot of IPSS/ Prostate Volume

The Pearson correlation between prostate volume and IPSS is 0.13 (p value 0.18).

DISCUSSION

Studies using symptom indices and physiologic variables to measure relationship of symptom severity and prostate volume have been undertaken in men with prostate disease"

Prostate diseases and lower urinary tract symptoms are quite prevalent in men with increasing age. In this study the mean age of men with prostate disease was 62.6 years. This is similar to the findings in other studies. In Lagos Nigeria the mean age of men with prostate disease was 64.4 years while in South-western Nigeria Badmus et al documented similar finding.

Common afflictions of the prostate include prostatitis, carcinoma of the prostate and benign prostatic hyperplasia. In this study 2.9% (n=3) had prostatitis; 19.4% (n=20) had adenocarcinoma of the prostate while 77.7% (n=80) had benign prostatic hyperplasia. These findings are similar to what is recorded in other parts of the world. In different studies, the range of prostatitis syndrome was 2.2 to 9.7%. The incidence of prostate cancer has surged dramatically in recent years due to improved cancer screening and detection mechanisms'. Thompson et al recorded a prevalence of 15% in the Prostate Cancer Prevention Trial. Benign prostatic hyperplasia remains the commonest disease affecting the prostate. Galic et al in a study of prostate disease prevalence recorded high prevalence of benign prostatic hyperplasia with low prevalence of carcinoma of the prostate and prostatitis.

Overall, 69.9% and 22.3% of the men were moderately and severely symptomatic respectively using the IPSS to assess symptom severity. This shows that most of the men had moderate symptoms similar to the findings of McConnell et al.

The relationship between prostate volume and IPSS has been a controversial issue, however in this study there was a weak correlation between prostate volume and IPSS. The Pearson correlation $r = 0.13$ with P value of 0.18. This is statistically insignificant. Sciarra et al studied the relationship among symptom score, urinary flow rate and prostate volume in men with lower urinary tract symptoms (LUTS). He concluded that symptom score weakly correlated with age and prostate volume. Bosch et al in a community based study, assessing the prevalence and correlation of

symptoms with age, prostate volume, flow rate and residual volume using IPSS as a tool, also showed that there was a weak correlation between the IPSS and total prostate volume. ($R = 0.19$).

However, Eckhard et al investigated the associations of symptoms and quality of life with age, prostate volume, and urodynamic parameters in a large group of strictly selected men with lower urinary tract symptoms. His conclusion was, except for nocturia, older men had higher voiding scores on the IPSS. Prostate volume and obstruction grade were not associated with high voiding scores on IPSS, but low detrusor contractility and low capacities were, associated with the symptom index. Rosier et al, in a retrospective study involving 521 men with lower urinary tract symptoms showed there was no correlation between symptom scores (Madsen and IPSS) and prostate size or volume. Barry et al showed that at baseline symptom severity was not correlated with prostate volume.

Hence, the interpretation of the IPSS values in a clinical setting should take the lack of correlation and the variability of the parameter values with prostate volume into account.

Conclusion: This study illustrates that there's no significant relationship between prostate volume and International prostate symptom score in African men with prostatic disease.

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