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ARTICLE

PROSTATE VOLUME'S EFFECT ON IPSS IN PATIENTS OVER 50 WITH LUTS AT RSUD ARJAWINANGUN

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ABSTRAK

The prostate is a gland that is part of the male reproductive system, located just below the bladder and surrounding the urethra. The prostate plays a role in producing semen, which nourishes and transports sperm. The International Prostate Symptom Score (IPSS) is a self-administered questionnaire used to assess symptoms of Benign Prostatic Hyperplasia (BPH). This study evaluates the relationship between prostate volume measured through transabdominal ultrasound and the International Prostate Symptom Score (IPSS) in patients aged 50 and above with Lower Urinary Tract Symptoms (LUTS) at RSUD Arjawinangun. The method involves using primary data (questionnaires) and performing prostate volume measurements via transabdominal ultrasound on 20 patients. The data will then be analyzed using SPSS version 26 with Spearman's test. Univariate results show that 12 patients experienced severe IPSS scores. The characteristic of prostate volume measured by transabdominal ultrasound was most found to be normal, with 12 patients having this volume. There was no significant relationship between prostate volume and the International Prostate Symptom Score (IPSS) in patients aged 50 and above with Lower Urinary Tract Symptoms (LUTS) at RSUD Arjawinangun, with a p-value of 0.811.

Keywords: Prostate volume; International Prostate Symptom Score; Lower Urinary Tract Symptoms

АБСТРАКТ

Простата — это железа, являющаяся частью мужской репродуктивной системы, расположенная чуть ниже мочевого пузыря и окружающая уретру. Простата играет роль в выработке спермы, которая питает и транспортирует сперму. Международная шкала симптомов простаты (IPSS) представляет собой анкету для самостоятельного заполнения, используемую для оценки симптомов доброкачественной гиперплазии предстательной железы (ДГПЖ). В этом исследовании оценивается взаимосвязь между объемом простаты, измеренным с помощью трансабдоминального ультразвука, и Международной оценкой симптомов простаты (IPSS) у пациентов в возрасте 50 лет и старше с симптомами нижних мочевых путей (СНМП) в RSUD Arjawinangun. Способ предполагает использование первичных данных (опросников) и измерение объема предстательной железы с помощью трансабдоминального ультразвукового исследования у 20 пациентов. Затем данные будут проанализированы с использованием SPSS версии 26 с тестом Спирмена. Одномерные результаты показывают, что у 12 пациентов наблюдались тяжелые оценки по шкале IPSS. Характеристика объема простаты, измеренная с помощью трансабдоминального УЗИ, в большинстве случаев оказалась нормальной: этот объем имелся у 12 пациентов. Не было выявлено значимой связи между объемом простаты и Международной оценкой симптомов простаты (IPSS) у пациентов в возрасте 50 лет и старше с симптомами нижних мочевых путей (СНМП) в RSUD Arjawinangun со значением p 0,811.

Ключевые слова: объем простаты; Международная шкала симптомов простаты; Симптомы нижних мочевых путей

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INTRODUCTION

Low the bladder and surrounding the urethra. It plays a role in producing semen, which nourishes and transports sperm.[1] Historically, Lower Urinary Tract Symptoms (LUTS) have been associated with prostate enlargement, particularly in men over 40.[2,3] However, recent research has questioned the causal relationship between prostate size and the pathogenesis of LUTS. Although benign prostatic enlargement (BPE) can significantly contribute to the onset of LUTS in some men, it is essential to consider other factors such as metabolic, neurological, inflammatory, and anatomical issues when evaluating LUTS.[2,4,5]

Ultrasonography (USG) can measure the volume of the prostate.[6] In normal men, the prostate size typically ranges around 25 cm^3 (3x3x5 cm). Prostate ultrasound can be performed via three methods: transabdominal, transrectal, and transperineal. In practice, the transabdominal technique is easier to perform but has limitations, especially in obese men. Besides measuring size, USG can also assess shape, symmetry, echogenicity, and capsule integrity. Vascularization can be evaluated with Doppler testing. Due to difficulties in detecting malignancies, transabdominal USG is rarely used to diagnose prostate cancer.[7-9]

The International Prostate Symptom Score (IPSS) is a self-administered questionnaire to assess BPH symptoms. It consists of seven questions related to BPH symptoms and one question about the patient's perceived quality of life. The first seven questions address urinary symptoms, with answers scored from 0 to 5. The total score can range from 0 to 35 (no symptoms to very symptomatic). The International Scientific Committee (ISC) recommends using a single question to assess quality of life, ranging from "very satisfied" to "very dissatisfied" or 0 to 6. The IPSS can be administered multiple times to compare the progression of symptoms and severity over months and years, and it is very useful in determining treatment for patients. This tool can be used in urology clinics, primary care clinics, and general practitioners' clinics for screening and diagnosing BPH. IPSS scores are categorized into three types: mild (symptom score ≤ 7), moderate (symptom score 8-19), and severe (symptom score 20-35).[10-13]

As a pillar of public health services, RSUD Arjawinangun plays a crucial role in detecting and managing prostate diseases in individuals aged 50 and above. Despite being at the forefront of healthcare services, no specific research has discussed the relationship between prostate volume and IPSS scores in patients with LUTS. With a diverse patient population, this study aims to provide a detailed understanding of prostate volume characteristics, IPSS scores, and LUTS symptoms in the over-50 age group. Involving a sample that reflects the diversity of RSUD Arjawinangun's patient population, this research is expected to contribute scientific knowledge to enhance local prostate health services and potentially serve as a reference for similar studies in other healthcare facilities.

MATERIAL AND METHODS

This study is analytic observational research with a cross-sectional design, focusing on determining the relationship between prostate volume measured via transabdominal ultrasound and IPSS scores in patients aged 50 years and older at RSUD Arjawinangun. The study population consists of patients from the urology clinic who present with lower urinary tract symptoms (LUTS). Sampling is done through consecutive sampling of eligible patients who meet the inclusion criteria during the period from November 6 to December 30, 2023. The sample size is determined using the 10 times rule, resulting in a minimum requirement of 20 samples.[14]

Data collection involves both primary and secondary data. Primary data are obtained directly into the patients through the IPSS questionnaire, which assesses LUTS symptoms. The secondary data are gathered from prostate volume measurements via transabdominal ultrasound. The measurements of prostate volume is taken from patient's medical record.

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Data analysis is conducted using bivariate analysis with the Spearman method in Statistical Product and Service Solutions (SPSS).

RESULT

This study was conducted at RSUD Arjawinangun, specifically at the urology clinic, where 20 patients served as respondents from November 6 to December 30, 2024. The data on the age characteristics of these 20 patients are as follows:

Table 1. Characteristics of Respondents

Age (yo)	F	(%)
50 - 55	2	10%
56 - 60	5	25%
61 - 65	8	40%
66 - 70	3	15%
71 - 75	2	10%
Total	20	100%

Based on Table 1, it can be observed that the age range of 61-65 years is the most prevalent among those experiencing LUTS and urinary symptoms. According to research by Lue and McAninch (2020), it is indicated that approximately 25% of men aged 55 experience LUTS symptoms, which may have various causes such as BPH, urinary tract infections, neurogenic bladder disease, urethral stricture, and cancer.[15] In this study, the researcher also analyzed data on the symptoms experienced by respondents with LUTS. The distribution of these symptoms is presented in the table below:

Table 2. Characteristics of LUTS in Respondents

Symptom	**F**	**(%)**
Disuria	1	5%
Disuria, Inkontinensia urin	2	10%
Inkontinensia Urin	9	45%
Inkontinensia Urin, Nokturia	7	35%
Weak stream	1	5%
Total	20	100

Based on Table 2, urinary incontinence is the most dominant symptom in this study, with a distribution of 9 patients (45%). Additionally, the researcher also presents data on prostate symptoms measured using the IPSS questionnaire. The distribution of these data is as follows:

Table 3. IPSS Scores

IPSS	**F**	**(%)**
Normal	2	10%
Moderate	6	30%
Severe	12	60%
Total	20	100%

Table 3 shows the distribution of IPSS data. Based on the questionnaire results, the severe IPSS category is the most predominant in this study, with 12 patients (60%). This indicates that patients visiting the urology clinic at RSUD Arjawinangun have relatively severe BPH symptoms. The researcher also analyzed prostate volume in centimeters using transabdominal ultrasound, and the data obtained is presented as follows:

Table 4. Prostate Volume Characteristics Using Transabdominal Ultrasound

Prostat Volume	F	%
Normal	15	75%
Moderate	3	15%
Severe	2	10%
Total	20	100

Based on the table, it can be seen that the normal prostate volume category is the most predominant in this study, with 15 patients (75%). The assessment of prostate volume was based on the research conducted by Nguyen (2021), which defined three volume categories: normal (0 to 40 cm^3), moderate (40 to 80 cm^3), and large (greater than 80 cm^3).[16] The following presents the results of the bivariate analysis using Spearman's test:

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Table 5. Bivariate Analysis Results Using Spearman's Test

Result	N	Pearson Correlation	Sig. (2-tailed)
Total IPSS	20	1	
Prostat Volume	20	0,057	0,811

Based on the results of the bivariate analysis using Spearman's test, the p-value obtained is 0.811, which is greater than 0.05 (0.811 > 0.05). This indicates that there is no significant relationship between the IPSS score and prostate volume. This finding suggests that the severity of LUTS symptoms does not always correlate directly with prostate size. This is consistent with previous research (Ismy et al., 2020), which found no relationship between prostate volume and the degree of LUTS.[17] There is an indication that other factors, such as weak detrusor muscle or neurogenic factors, may play a more significant role in determining the severity of LUTS symptoms.[18]

DISCUSSION

The study's findings indicate that the severity of LUTS does not consistently correlate with prostatic size. This aligns with prior research conducted by Ismy in 2020, which revealed that prostate volume does not correspond with the severity of LUTS. Research conducted by prior scholars indicates that IPSS scores are not the sole determinants of prostate volume. A study by Kant in 2021 elucidated that the prevalence of LUTS is not invariably associated with an increase in prostatic volume. Psychological factors, such as stress, are occasionally associated with LUTS. A study by Maharaj in 2015 indicated that diseases such as urinary tract infections and neurogenic bladder dysfunction are associated with LUTS.

LUTS can be further investigated by specific examinations such as uroflowmetry, and its severity can be assessed by the IPSS. The IPSS assessment provides the severity level of LUTS, categorized as mild, moderate, and severe.[13] However, LUTS may be related to prostate enlargement, which can be measured by abdominal ultrasound examination. The enlargement of the prostate can be classified as normal, mildly enlarged, and greatly enlarged.[16]

CONCLUSION

Based on the results and discussion above, the researcher concludes that there is no relationship between the IPSS score and prostate volume in patients aged 50 and above with lower urinary tract symptoms (LUTS) at RSUD Arjawinangun. This means that the severity of LUTS symptoms does not always correlate directly with prostate size.

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