



Original Contribution

FIRST MANIFESTATIONS OF LOWER URINARY TRACT SYMPTOMS IN MEN

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ABSTRACT

PURPOSE: Benign prostatic hyperplasia is not a disease in the true sense of the word, but a pathological process that aggravates with age. In the present study, we tried to find out the first changes in urination by comparing two groups of men in their forties and fifties. **METHOD:** The contingent of the study were 133 patients. Urinary symptoms were recorded using the International Prostate Symptom Score. The presence and type of comorbidities, prostate volume and total PSA were also noted. **RESULTS:** Patients aged 50 - 59 had significantly more complaints of a weak urine flow and nocturia compared to those in their forties. They also had more concomitant diseases, a larger prostate and higher PSA. **CONCLUSIONS:** In the studied population, the first manifestations of lower urinary tract symptoms in men were nocturia and weak stream.

Keywords lower urinary tract symptoms, benign prostatic hyperplasia, nocturia

INTRODUCTION

Benign prostatic hyperplasia (BPH) is not a disease in the true sense of the word, but rather a pathological process which deteriorates with age. In clinical practice, the assessment of the process is made by analyzing the changes occurring in the patient's urination. In the present study, we tried to establish the first changes in urination that occur in ageing patients by comparing two groups of men in their forties and fifties.

MATERIALS AND METHODS

A single-centre, non-interventional study was conducted. The study subjects were 133 patients examined at St. Anna Multiprofile Hospital for Active Treatment in Varna between April 2022 and April 2025. Urinary symptoms were recorded using the International Prostate Symptom Score (IPSS). The presence and type of comorbidities, prostate volume (measured by ultrasound) and total PSA were also recorded. The data were analysed with IBM SPSS version 23.

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RESULTS

Of all 133 patients, 55 (41.4%) were between 40 and 49 years old, and 78 (58.6%) were in their fifties. Patients in the age group 50-59 expressed significantly more complaints of weak urine flow and nocturia. They also had more comorbidities, larger prostate volume, and higher PSA values. A more specific look at the data showed:

1. Weak urine flow

Weak stream was reported by 37 patients aged 50-59 and 13 patients aged 40-49. A statistically significant relationship was found between age and presence of weak urine flow ($z = 2.853$, $p = .004$, Mann-Whitney U test). (Figure 1).

The chance of presenting with weak urine flow in patients aged 50-59 was about 200% higher (OR = 2.916; 95% CI: 1.357-6.262). Therefore, patients aged 50-59 can have three times higher incidence of weak stream.

2. Nocturia

44 patients aged 50-59 and 13 patients aged 40-49 complained of nocturia. A statistically significant association was found between age and the presence of nocturia ($z = 3.269$, $p = .001$, Mann-Whitney U test). The chance of having nocturia in patients aged 40-49 was about 300% higher (OR = 4.181; 95% CI:

1.943–8.997), i.e. a patient aged 50–59 was 4 times more likely to present with nocturia. (Figure 2)

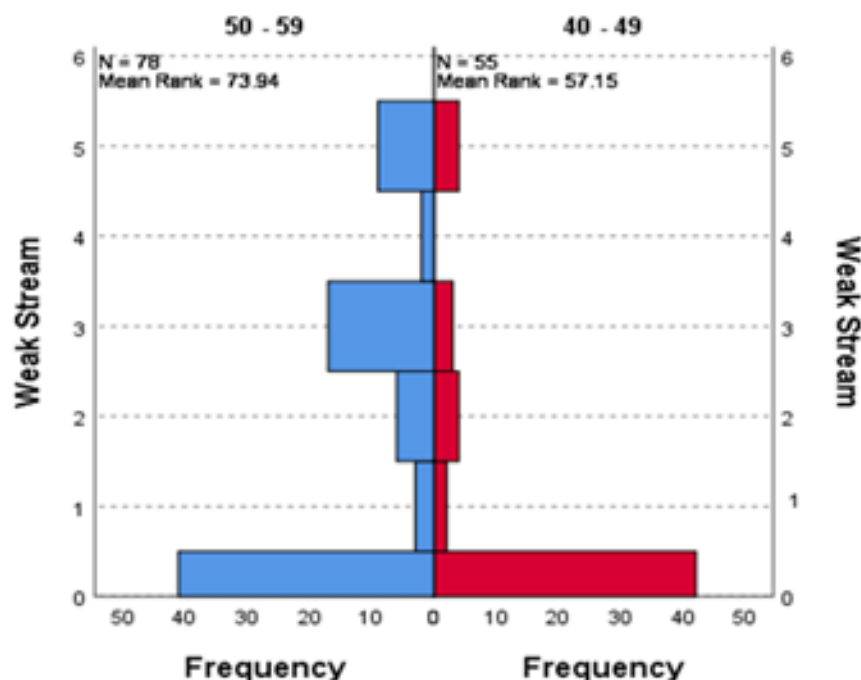


Figure 1. The symptom of weak stream in both age groups (scored from 0 to 5 according to IPSS)

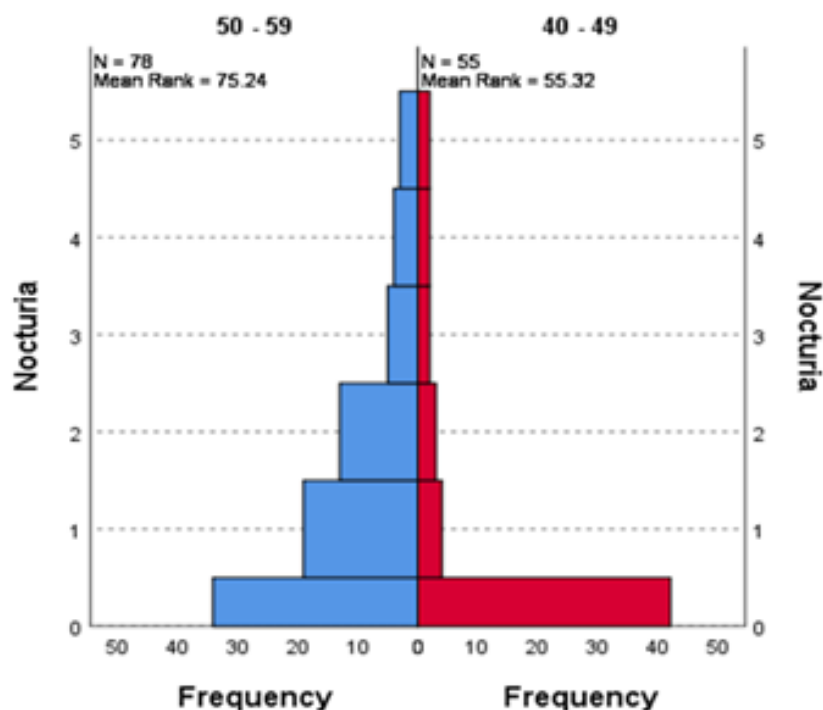


Figure 2. The symptom of nocturia in both age groups (scored from 0 to 5 according to IPSS)

3. Other diseases

Two socially significant diseases were reported – arterial hypertension and diabetes mellitus. In the age group 40 – 49, sixteen patients (9.6%) had such diseases, compared to 48 patients

(36.1%) in the group aged 50–59. A statistically significant relationship was found between age and the presence of other diseases ($z = 3.593$, $p < .001$, Mann-Whitney U test). (Figure 3).

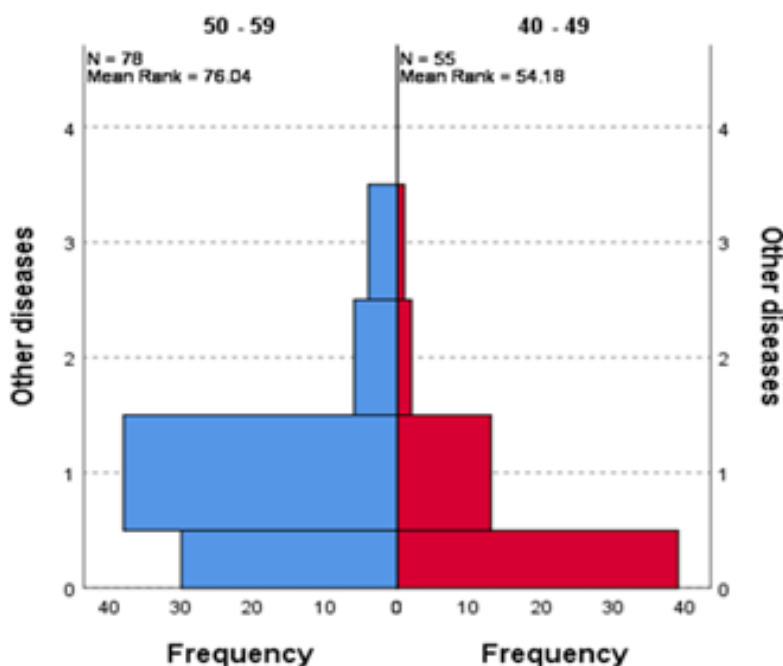


Figure 3. Other diseases in both age groups: 0 – means no comorbidities, 1 – hypertension, 2 – diabetes, 3 – hypertension plus diabetes present

The chance of developing these diseases in patients aged 50-59 was about 300% higher (OR = 3.900; 95%CI: 1.862-8.169), i.e. a patient in his fifties was about 4 times more likely to have diabetes and/or hypertension.

4. Prostate volume

The mean prostate volume of patients aged 50-59 was 28.9 ml with a median of 26.7 ml (20.2-35.0), and of those aged 40-49 was 22.0 ml with

a median of 21 ml (17.1-25.0). A statistically significant relationship was found between age and prostate volume. Older patients had a larger prostate volume ($z = 3.454$, $p = .001$). The chance of having a larger prostate in a patient aged 50-59 was about 1000% higher (OR: 11.813, 95% CI: 1.504-92.757), i.e. a patient aged 50-59 was about 11 times more likely to have a larger prostate volume (**Figure 4**).

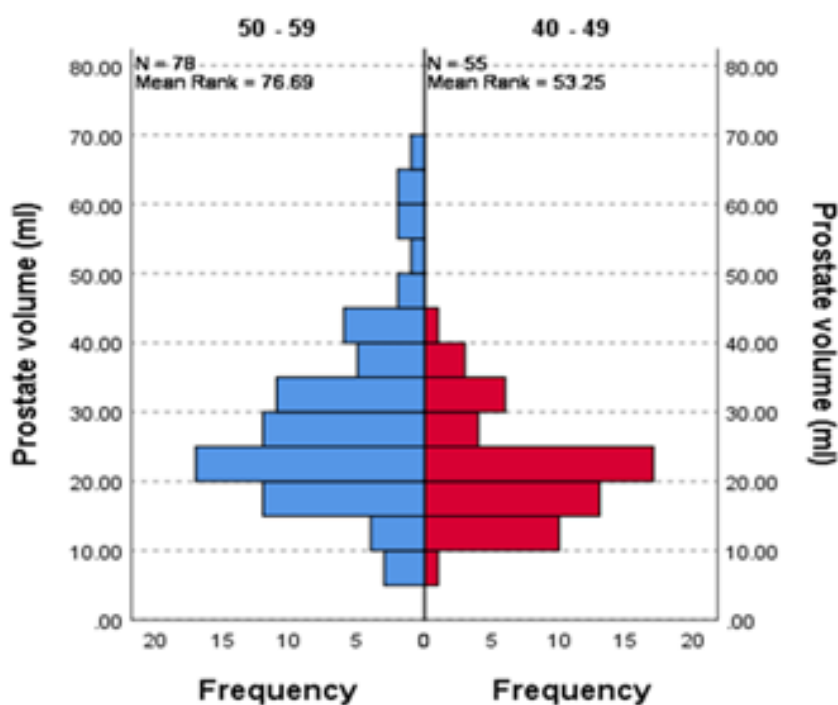


Figure 4. The prostate volume in both age groups

5. Total PSA

PSA values of 57 patients in the age group 50–59 and 20 patients in the age group 40–49 were observed, with only 10 (13%) having $\text{PSA} \geq 3$. Although PSA values in the age group 50–59 were significantly higher than those in the

younger age group, the difference was not significant at $\text{PSA norm} = 3$ ($\chi^2 = .213$, $p = .664$). The odds ratio was not statistically significant ($\text{OR} = 1.469$; $95\% \text{CI: } .285 - 7.582$) (**Figure 5**).

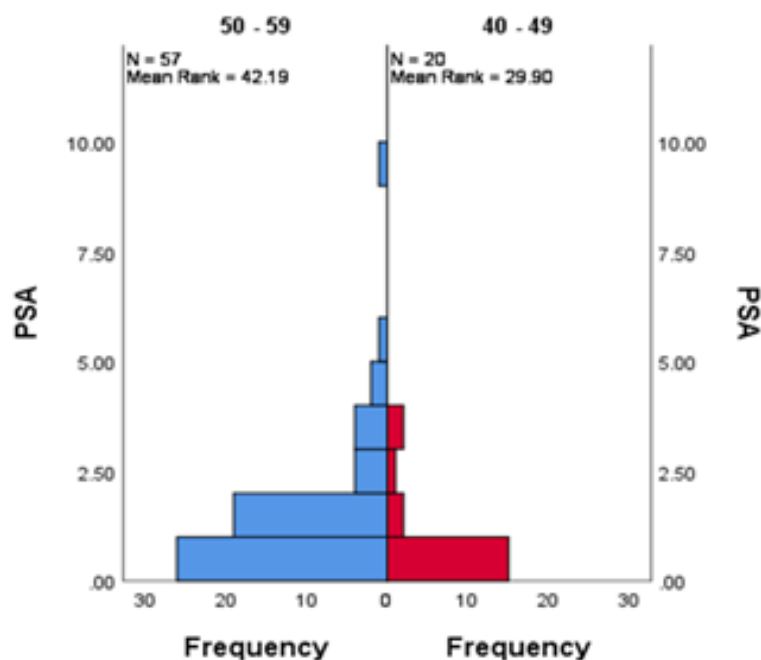


Figure 5. Total PSA in both age groups

DISCUSSION

As already mentioned, BPH is a pathological process in the aging male. The most accurate analysis of the progression of BPH is performed by prostate biopsy. Such studies have indeed been conducted, and in 1984 Berry summarized the data available to date from five studies (1). It was found that men before the age of thirty had no signs of BPH. Subsequently, the incidence of BPH increases with age, reaching a peak of 88% among men in the eighth decade of life. Later, many other studies of similar design were carried out in the USA, the UK, Austria, Norway, Denmark, China, Japan and India (2-7). They showed that the incidence of BPH increases sharply in the fourth decade of life and reaches almost 100% in the ninth decade. Strikingly, the age-specific prevalence of BPH at autopsy is remarkably similar in all studied populations, regardless of the ethnic and geographic origin of the men.

The other more accessible and more common way to analyze the progress of BPH is by assessing clinical changes. Various questionnaires are used, the most popular of which is IPSS. Initially, we analyzed 55 patients aged between 30 and 39 who had not reported any urinary abnormalities according to IPSS. In

our study, such abnormalities began to appear in patients over 40. Urinary complaints become particularly pronounced after the age of 50. As we know, IPSS reports seven symptoms of the lower urinary tract, which are divided into storage, voiding, and post-micturition symptoms. It turns out that with age, the symptoms of weak urine flow and nocturia appear first. This is somewhat in line with other studies on the subject, which emphasize that nocturia (sometimes combined with pollakiuria) are among the first and most irritating complaints of the patient (8, 9). What is different is that in our study, weak stream also appears as an early manifestation of BPH.

Additionally, we also analyzed prostate volume and total PSA levels. Both increased statistically significantly in men in their fifties, compared to men in their forties. This is consistent with the classical hypothesis that BPH leads to an increase in prostate size, which causes obstruction of the bladder outlet with corresponding urinary problems. Also, in men in their fifties, the incidence of two socially significant diseases increases – hypertension and diabetes. They are also known to lead to changes in urination.

CONCLUSIONS

In the group aged 30-39, no significant changes in urination were found. Patients aged 50-59 had significantly more complaints of weak stream during urination and nocturia (compared to those aged 40-49). Also, fifty-year-olds had more comorbidities (arterial hypertension and/or diabetes mellitus), larger prostate volume and higher PSA values.

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