



Original Article

Diagnosis and treatment patterns of male lower urinary tract symptoms suggestive of benign prostatic hyperplasia in Murjani General Hospital, Central Kalimantan, Indonesia



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ABSTRACT

Background: The aim of this study was to describe the diagnosis and treatment patterns of male lower urinary tract symptoms (LUTS) suggestive of benign prostatic hyperplasia (BPH) and evaluate their appropriateness in an area without an urologist and with limited resources, such as the area covered by Murjani General Hospital, Sampit, Indonesia.

Methods: This descriptive study used data collected from medical records of patients who were diagnosed with LUTS suggestive of BPH in Murjani General Hospital between September 2013 and August 2015.

Results: There were 89 patients. Their mean age was 64.5 years. The most common chief complaint was inability to void (59.6%), followed by frequency (10.1%). Diagnostic evaluations such as symptom scoring (1.1%), frequency–volume chart (0%), digital rectal examination (3.4%), urinalysis (5.6%), and prostate-specific antigen (0%) were used rarely or never, while renal function assessment (37.1%) and imaging of the prostate (68.5%) and upper urinary tract (65.2%) were used more often. Overall, the treatment that was administered most often was indwelling catheterization (25.8%); only 19.1% visited a urologist following a referral by the physician, although 41.6% were referred to a urologist. There were 40.4% of patients with an indication for surgery, mostly in the form of recurrent or refractory urinary retention (83.3%). In this group of patients, only 38.9% received appropriate treatment in the form of open prostatectomy by a general surgeon (16.7%) or were referred to a urologist (22.2%), while 50% of them were managed with chronic indwelling catheterization.

Conclusion: All patients received substandard diagnostic evaluations, with a pattern of preference toward imaging studies over more basic examinations for LUTS–BPH. The high frequency of indwelling catheterization in overall and inappropriate treatment in the group of patients with an indication for surgery showed that patients received suboptimal treatment. Improvements in various aspects are required to optimize the management of LUTS suggestive of BPH in Murjani General Hospital.

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1. Introduction

Lower urinary tract symptoms (LUTS) suggestive of benign prostatic hyperplasia (BPH) is a common and bothersome condition in aging men.¹ The prevalence of moderate to severe LUTS in men ranges from 16.2% to 25.1%,^{1,2} while the prevalence of LUTS described at least 'sometimes' and at least 'often' is 72.3% and 47.9%, respectively.³ This prevalence increases with age,^{1,2} and the quality

of life has reduced significantly among those with LUTS.¹ Although the etiology of male LUTS is multifactorial, one of the most common causes of LUTS in older men is BPH, which induces benign prostatic enlargement and benign prostatic obstruction.⁴ As the aging population in Indonesia is growing, with the elderly population constituting 8.03% of the total population in 2014 and showing an increasing trend,⁵ one can expect an increase in the number of men with LUTS suggestive of BPH here.

Management of men with LUTS suggestive of BPH by urologists and general practitioners in Indonesia has in part referred to current guidelines.^{6,7} Unfortunately, as a developing country, health-care resources in Indonesia are not distributed evenly. Urologists

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are concentrated in Java Island, and outside Java Island they are mostly located in province capitals. Owing to that, management patterns of male LUTS suggestive of BPH in areas without urologist(s) and with limited healthcare resources, such as East Kotawaringin Regency that is covered by Murjani General Hospital, Sampit, Indonesia cannot be represented by those studies.

The general objectives of this study were to evaluate the diagnosis and treatment patterns of male LUTS suggestive of BPH in Murjani General Hospital, and compared the results with available guidelines to assess its appropriateness.

2. Materials and methods

This descriptive study used data retrospectively from medical records of patients of Murjani General Hospital, during the 2-year period from September 2013 to August 2015. Patients who were diagnosed with male LUTS suggestive of BPH by a general practitioner or a general surgeon and confirmed by a general surgeon were included in this study. The exclusion criteria were as follows: (1) patients who were diagnosed with LUTS caused by conditions other than BPH during follow-ups; (2) patients who had already undergone prostate, bladder, or urethral surgery before the time of diagnosis; and (3) patients who had already been treated for LUTS/BPH by a urologist before the diagnosis.

The data collected included patients' age, health insurance, chief complaint, performed or measured diagnostic evaluation, comorbid conditions, surgical history, indication for surgery, treatment received, and treatment outcome.

3. Results

3.1. Sample characteristics

A total of 89 patients were included in this study. Patient characteristics are shown in Table 1.

3.2. Diagnosis pattern

The chief complaints were inability to void (59.6%), frequency (10.1%), intermittency (7.9%), straining (7.9%), incomplete emptying (5.6%), nocturia (3.4%), and others (5.5%).

The performed or measured diagnostic evaluations were as follows: symptom scoring using the International Prostate Symptom Score (IPSS) in 1.1%, frequency–volume charts (FVC) in 0%, digital rectal examination (DRE) in 3.4%, urinalysis in 5.6%, prostate-specific antigen (PSA) in 0%, renal function assessment in 37.1%, imaging of the upper urinary tract in 65.2%, and imaging of the prostate in 68.5%. No patients received the standard diagnostic evaluation according to available LUTS/BPH guidelines.

Table 1
Patients' characteristics

Variables	Value
Mean age (y)	64.5 (40–88)
Age distribution	
40–49	4.5
50–59	25.8
60–69	34.8
70–79	29.2
80–89	5.6
Type of health insurance	
No insurance	43.8
National health insurance	45.0
District health insurance	11.2

Data are presented as *n* (%).

The comorbid conditions found were hypertension (23.6%), dyslipidemia (5.6%), heart disease (2.2%), Type 2 diabetes mellitus (2.2%), gout (2.2%), asthma (1.1%), and nonhemorrhagic stroke (1.1%). The surgical histories found were inguinal hernia repair (3.4%), appendectomy (1.1%), and cholecystectomy (1.1%).

Of the patients, 40.4% had an indication for surgery. The indications were recurrent or refractory urinary retention (83.3%), bladder stones (8.3%), renal insufficiency (5.6%), and dilatation of the upper urinary tract (2.8%). For the remaining patients, it could not be determined whether they had any indication for surgery or not because of the lack of diagnostic evaluations.

3.3. Treatment pattern

Overall, the patients were treated with watchful waiting (21.3%), received medical treatment (21.3%), received surgical treatment in the form of open prostatectomy (OP) by a general surgeon (12.4%), were referred to a urologist (19.1%), and underwent indwelling catheterization (25.8%); in patients with an indication for surgery, with the same treatment option, the rates were 2.8%, 8.3%, 16.7%, 22.2%, and 50%, respectively.

In all, 37 patients (41.6%) were referred to a urologist by the general surgeon. The factors that led to the referral were the presence of an indication for surgery (62.2%), age > 70 years (59.5%), and the presence of comorbid conditions that increased surgical risk (48.6%). Fourteen patients (37.9%) visited a urologist following the referral, while the rest refused and chose to be treated with watchful waiting (5.4%), medical treatment (10.8%), surgical treatment (10.8%), and indwelling catheterization (35.1%). Three patients requested for a urologist referral without being advised by the general surgeon.

3.4. Treatment outcome

The outcomes in the watchful waiting groups were improvement (5.3%), unchanged (31.6%), deterioration (21.0%), and loss to follow-up (42.1%). In the same order, the outcomes in the medical treatment group were 42.1%, 26.3%, 10.5%, and 21.1%, respectively, and those in the indwelling catheterization group were 21.8%, 30.4%, 13.0%, and 34.8%, respectively. In the surgical treatment group, 90.9% reported improvement and 9.1% (1 sample) died in the postoperative period. In the referred group, 23.5% reported improvement and 76.5% were lost to follow-up. Those who reported improvement in the referred group were all treated with transurethral resection of the prostate by the urologist.

4. Discussion

Age distribution was represented by a bell-shaped curve, with the peak in the 60–69-year-old group. It matched with the life expectancy in East Kotawaringin, which was 69.56 years.^{8,9} The usual linear progression of prevalence with aging^{1,2} could not be demonstrated because of the small sample size, which prevented these data from representing the true age distribution or prevalence in the population.

The most common chief complaint was inability to void (59.6%). Its rate was similar to that reported in studies in Indonesia (55.5%)⁶ and Bahrain (42.95%)¹⁰; however, it was not a common complaint in Europe (6.8%).¹¹ This may be caused by the difference in healthcare-seeking behavior of people of East Kotawaringin and those of developed countries. Andersen¹² suggested that three categories of factors determine how and whether individuals use medical services, which were predisposing factors (e.g., health beliefs, attitudes, and education), enabling factors (e.g., income, health insurance, geographic proximity, and clinic waiting times), and need

factors (e.g., presence of symptoms or diseases). Some people accepted urinary symptoms as a normal part of aging^{13–15}; 49.52% of the people in East Kotawaringin had only elementary school degree and only 4.54% had a university degree⁹; and 8.37% of the people were categorized as poor, with 2.08% being openly unemployed; the Healthcare and Social Security Agency (national health insurance in Indonesia) had not covered most citizens, with only 44.9% of the patients being covered by it; and geographic access to healthcare was difficult, with Murjani General Hospital being the only hospital in Kotawaringin Timur Regency and covering an area of 16.796 km² and 405.700 citizens,^{8,9} which also resulted in a long clinic waiting time. A combination of these factors might have influenced patients to seek medical care only in case of severe symptoms or complications, such as inability to void. Meanwhile, Verhamme et al¹⁶ showed that acute urinary retention (AUR) was the first symptom of LUTS/BPH in 49% of AUR cases that occurred in men newly diagnosed with LUTS/BPH. Some patients may truly have urinary retention as their first symptom. Sexton et al³ and Montorsi and Mercadante¹¹ reported that nocturia was the most common symptom and its resolution was the top priority in terms of treatment of LUTS/BPH, while in our study only 3.4% of patients reported nocturia as their chief complaint. This difference may also be caused by factors influencing health-seeking behavior as stated above, but further research may be needed to elucidate this disparity.

According to current guidelines,^{17–19} the recommended diagnostic evaluations of LUTS by a nonurologist should include medical history, evaluation of symptoms using IPSS, DRE, urinalysis, and, in patients with indication, FVC, PSA, imaging of the prostate, and imaging of the upper urinary tract. Contrary to these recommendations, all patients in this study received substandard diagnostic evaluations. Even though results from studies in Indonesia⁶ and Europe¹¹ also showed that IPSS, DRE, urinalysis, and PSA measurement were not routinely done, the results from this study were much lower compared to them. In Indonesia and Europe,^{6,11} respectively, IPSS was used in 44% and 15.4%, respectively, compared with 1.1% in this study, DRE in 65% and 63.8%, respectively, compared with 3.4%, urinalysis in 19% and 60.8%, respectively, compared with 5.6%, and PSA in 23.5% and 87.9%, respectively, compared with 0%. This difference may be caused by the differences in study design and availability of healthcare resources. Those studies used data collected from general practitioners using questionnaires and were conducted in developed areas with different availability of healthcare resources compared with the area where this study took place. Possible reasons for the rare usage of IPSS were that it was considered impractical and time consuming, especially in a busy practice setting,⁶ and some physicians did not find it useful for clinical practice.¹¹ Seftel et al²⁰ also reported that only 41% of primary-care physicians used IPSS to assess LUTS compared with 81% of urologists. The same reasons as to why IPSS was rarely used also applied to the rare usage of DRE and FVC. For PSA measurements, the rare usage may be caused by its unavailability in the hospital's laboratory and due to the fact that the fee for examination in private laboratory was not covered by the national health insurance. Possible explanations for the high number of imaging studies compared with other examinations were as follows: physician's over-reliance on imaging, the process not being time consuming for the diagnosing physician, and its easy availability and coverage by the national health insurance.

The comorbid conditions found were in accordance with the findings that heart disease, hypertension, asthma, diabetes, and neurological condition were associated with LUTS.^{21,22} Hammarsten and Hogstedt²³ also found that Type 2 diabetes mellitus, hypertension, and low high-density lipoprotein cholesterol levels were risk factors for the development of BPH, although the type of dyslipidemia found in this study was not clarified. There was neither

control group nor epidemiologic data about those diseases in East Kotawaringin; therefore, the frequency could not be compared.

The appropriateness of the treatment could not be determined because of the lack of diagnostic evaluations. Severities of symptoms, predominant symptoms, bothersome symptoms, and prostate volume were not adequately assessed in almost all patients, so the algorithm from current guidelines^{17–19} could not be applied. Overall, the treatment that was administered most often was indwelling catheterization (25.8%). Even though catheterization is the proper initial management for AUR, it should be combined with α -blockers followed by a trial without catheter (TWOC), and if the TWOC fails, followed by surgery^{24,25} or clean intermittent catheterization.²⁴ Patients who were treated by indwelling catheterization in this study did not receive any medical treatment and did not plan to undergo surgical treatment or see a urologist if a TWOC fails. Explanations why most treatments were stopped at indwelling catheterization were similar to why most patients present late with urinary retention, added by the factors related to referral advice. As stated above, education level in East Kotawaringin was low,⁹ so patients might have assumed that their disease, in the form of urinary retention, was cured by catheterization, as evidenced by the passage of urine and diminishing pain. Cunningham-Burley et al¹³ suggested that fear of surgery is a factor influencing decision making regarding consulting a doctor, although the surgery was of minimally invasive nature if they were referred to a urologist. This was made worse by the people's perception that urinary symptoms are a normal part of aging,^{13–15} so the concept of requiring a surgery or treatment for a condition that they considered normal was contradictory. Patients who were referred to a urologist usually had an indication for surgery and comorbid conditions that increased their surgical risk. However, among them, only 37.9% visited a urologist after being referred; therefore, those who refused had limited options, because OP, an intermediate risk procedure with reported cardiac risk of 0–8%,^{26,27} complication rates of 3.5–57.3%,²⁶ and mortality rates of 0–1%,²⁸ was not feasible for those with a high surgical risk, while watchful waiting and medical treatment were unlikely to alleviate the AUR, leaving indwelling catheterization as the only feasible, albeit inappropriate, option, as reflected by its highest percentages in those who refused referral.

The abovementioned factors also influenced a patient's decision to visit a urologist after being referred, added by other factors. The nearest urologist to be referred to was in the province's capital, Palangkaraya, which is about 230 km from Murjani General Hospital. Even though the medical cost was covered by the national health insurance, transportation and accommodation fees were not. In addition, only 44.9% of patients had national health insurance and district health insurance could not be used outside of East Kotawaringin. Loss of time at work as well as loss of potential earning also contributed.¹² These explained why only 17 patients (19.1%) visited a urologist following a referral, although 37 patients (41.6%) were advised to do so.

OP was almost abandoned in some developed countries in favor of other less invasive techniques, although it is still commonly performed in other countries.²⁶ In this study, 12.4% of patients were treated by OP. This rate differed from that in the USA, where the rate of OP was only 2.3%.²⁹ It was because OP by a general surgeon was the only available surgical treatment for BPH in Murjani General Hospital and the barrier for urologist referral as stated above. Even though this procedure was associated with the highest morbidity rate and the largest patient burden and cost, it maintained an outstanding clinical outcome.²⁶ OP still has a role, and is acceptable in less developed countries and less wealthy areas, such as in this study.

Two-fifths of the patients in this study had an absolute indication for surgery, mostly in the form of recurrent or refractory urinary

retention. However, only 38.9% of them received appropriate treatment, whether by a general surgeon (16.7%) or a urologist (22.2%). Half of these patients were treated only by a chronic indwelling catheter, which is clearly inappropriate in the face of an absolute indication for surgery. Patients with recurrent or refractory urinary retention should at least be managed with clean intermittent catheterization if surgery is not possible.²⁴ Successful TWOC became more difficult to achieve because none of these patients received α -blockers during their catheterization. Among those refusing the urologist referral, 35.1% were also managed with indwelling catheterization. Factors influencing the choice of indwelling catheterization as a treatment option and a barrier for urologist referral, as stated above, also explained this treatment pattern.

Factors related to referral advice were mostly indications for surgery with increased surgical risk. Increased age independently predicted morbidity and mortality,³⁰ and age > 70 years was one of the parameters in most cardiac risk indices for noncardiac surgery, such as Goldman Cardiac Risk Index.³¹ The contribution of cardiovascular disease to perioperative mortality during noncardiac surgery is significant,²⁷ and diabetes mellitus with its perioperative hyperglycemia increases the risks of postoperative mortality and cardiovascular, respiratory, neurologic, and infectious morbidity.³²

The treatment outcome showed that those in the surgical treatment group reported improvement in 90.9%, and all those referred to a urologist and returned back to Murjani General Hospital reported improvement after transurethral resection of the prostate, although only a fraction of patients (23.5%) were available for follow-up. Studies showed that dissatisfaction rate of patients treated by OP and transurethral resection of the prostate were 9% and 15%, respectively.^{33,34} The loss to follow-up was highest in the referred group (76.5%), because the referral hospital was not accessible for data collection as it was outside the coverage area of this study and the back-referral system was not routinely used. Those treated with indwelling catheterization reported improvement in 21.8% in terms of ability to void after TWOC without the need of further catheterization, although none of them received α -blockers during their catheterization, as stated above. This contradiction might be caused by the type of AUR the patients had. In those with spontaneous AUR, 15% had another episode of spontaneous AUR and 75% underwent surgery, while in those with precipitated AUR, only 9% had an episode of spontaneous AUR and 26% underwent surgery.³⁵ Unfortunately, the types of AUR that occurred in patients were not documented; therefore, it could only be estimated that those with an improvement mostly had precipitated AUR. The loss to follow-up rate was also high in the indwelling catheterization group (34.8%) because the patients in this group had already rejected other forms of treatment. From their rejection it can be inferred that their compliance to regular follow up is low.¹² Community health centers and practicing physicians also provide services such as changing catheters; therefore, patients may choose them over the hospital due to shorter waiting time. It is to be noted that the small sample size, subjective reporting of outcome, and nonuniform length and rate of follow-up prevented this study's outcome to have a balanced comparison with data regarding treatment outcome in LUTS–BPH.

This research had some limitations, which are as follows: (1) the number of samples were inadequate to represent the study's population; (2) the patients were not diagnosed for LUTS suggestive of BPH using the standard method, so further categorization of the patients was not complete; and (3) the treatment outcome in this study was not objectively measured with means such as IPSS, and the length and rate of follow-up were not uniform.

In summary, when compared with the available guidelines, all patients received substandard diagnostic evaluations. There was a pattern of preference toward imaging studies over more basic

examination. The use of core examination for LUTS and BPH, such as IPSS, FVC, DRE, urinalysis, and PSA, must be improved in Murjani General Hospital. Overall, the appropriateness of treatment could not be determined because of the lack of diagnostic evaluations, but most of the patients with an indication for surgery did not receive appropriate treatment, in part because most of them refused a referral to a urologist. The high number of indwelling catheterization and inappropriate treatment in those with an indication for surgery showed the tendency that patients received suboptimal treatment. The treatment outcome showed more favorable results in those who were treated appropriately than in those who were not, but its nonobjective nature and nonuniform follow-up limited its significance. Improvements in various aspects are required to optimize the management of LUTS suggestive of BPH in Murjani General Hospital.

Conflicts of interest

The author has no conflicts of interest to declare.

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