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Original Article

Adherence of Indonesian urologists to practice guidelines for the management of benign prostatic hyperplasia

Fakhri Rahman, Ida Bagus Putra, Chaidir Arif Mochtar, Nur Rasyid*

Department of Urology, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine, Universitas Indonesia, Indonesia

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ABSTRACT

Background: Clinical guideline is built to provide consistent, efficient, and high quality of medical care based on recent evidence. This study aimed to investigate the adherence of Indonesian urologists to clinical guidelines for the management of benign prostatic hyperplasia (BPH).

Materials and methods: This was a cross-sectional study using questionnaire conducted between January and June 2017. Respondents were Indonesian urologists registered as members of Indonesia Urological Association and had already practice in urology for at least 6 months. Questionnaires were sent via e-mail and Google Form. The level of adherence was measured using scoring system decided by authors' agreement. All data were processed using SPSS, version 23, and presented in descriptive fashion.

Results: Of 352 urologists who fulfilled inclusion and exclusion criteria, 209 (59.4%) respondents returned the questionnaire. Most of respondents (95.2%) used Indonesia Urological Association BPH guidelines as their clinical practice guidance. Routinely performed recommended examination, such as symptom scoring system, digital rectal examination, urinalysis, uroflowmetry, postvoid residual urine, and prostate imaging were used by 89.9%, 92.5%, 70.4%, 50.8%, 53.3%, and 98.6% respondents, respectively. After patient is diagnosed with BPH, most of respondents considered medical therapy (99%), surgical therapy (93%), and watchful waiting (78.4), with alpha-blocker as the drugs most preferred by respondents. For indication to perform surgery for BPH, only bladder stones, decreased renal function, and trial without catheter failure were considered by more than 85% of respondents. Open prostate surgery was performed by 54.8% respondents for the following reasons: large prostate volume, presence of bladder stone, unavailability of endourology equipments, abnormality of bladder, and residency training program. At last, this study found median (minimum–maximum) of Indonesian urologists adherence level toward BPH guidelines is 78.5% (28.6%–100%).

Conclusions: In general, Indonesian urologists have a good adherence toward guidelines. However, there is still wide variation of their adherence to it.

1. Introduction

Benign prostatic hyperplasia (BPH) is a progressive disease, and its increase in prevalence is parallel to age with an increased risk of 4% each year.[1–3] It is a pathological diagnosis, and an autopsy study showed that its prevalence is 8% in the 4th decade of life, 50% in the 6th decade of life, and 80% in 9th decade of life.[4,5] This disease leads to bladder outlet obstruction resulting in lower urinary tract symptoms (LUTSs) and other clinical complications, such as urinary tract infection, hematuria, urinary stone disease, and urinary retention, and sometimes causing loss of sleep and depression.[6] However, the impact of the disease is not only due to problems mentioned above which lead to a decline in patient's quality of life but also due to its significant cost. In the United States, it has been estimated that this disease cost $4 billion annually.[7]

To solve those problems, guidance is required to provide consistent and efficient clinical practice. Clinical guidelines could be the key to solve the problem.[8] Currently, numerous practice guidelines on BPH exist. However, implementing these guidelines in clinical practice is not always successful, and variations occur in clinical practice.[9,10] The difference are related to urologist preference or beliefs, cost, and available medical resources.[10] A study by Strope et al showed that variation existed for BPH evaluation. This

* Corresponding author. Cipto Mangunkusumo Hospital, Jl. Dipenogoro No. 71, Jakarta Pusat, Indonesia.
E-mail address: nur.rasyid@gmail.com (N. Rasyid).

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variation was influenced by location, urologist's experience, and resources.[11]

To provide a quality health care that is based on the latest evidence and recommendation, the Indonesian Urological Association (IUA) has updated its 2003 clinical guidelines on BPH in 2015.[12] The updated guidelines have included level of evidence and grade of recommendation for the management of BPH. It is hoped that with updated guidelines, Indonesian urologists will provide the best possible care for patients, attuned to the available resources.

To date, it is not known about how Indonesian urologists use and comply with the IUA BPH clinical guidelines. In this study, we will investigate the adherence of Indonesian urologists to clinical guidelines for the management of BPH.

2. Methods

2.1. Study's design and population

This was a cross-sectional study conducted between January and June 2017. Respondents had to be registered as urologist under the IUA database and had already practiced urology for at least for 6 months when the data were collected. Urologists who no longer practice were excluded from this study.

2.2. Data collection

Data were collected using questionnaires which were distributed in a national urology symposium (8th Uro Oncology update held between 9–11 February 2017) and electronically via e-mail and Google Form. Google Form link was sent as a part of e-mail and through short message service (SMS)/chat message (Whatsapp messenger application) to every individual who fulfills inclusion and exclusion criteria between April and June 2017. Urologists' e-mail and phone number were obtained from IUA database. Advance notifications were sent through an e-mail and SMS/Whatsapp messages, 1 week before the first e-mail. Follow-up and reminder were done every 2 weeks for four times using e-mails and SMS/Whatsapp messenger. Respondents had to fill out their name in the questionnaire or had to be identifiable to further be included in this study and to prevent data duplication. Respondent's confidentiality was guaranteed, and privacy policy statements were stated in the introduction of the questionnaire.

2.3. Study's questionnaire and its investigation

The questionnaire was constructed using Indonesian language and was divided into two sections which are questions regarding respondents' demographic characteristics and BPH management.

BPH management questionnaire consists of eight questions as follow: respondent's guidance for BPH management; diagnostic tools used; type of therapy given; selection of medical therapy given for the first time; indication of BPH surgery; whether the respondents are performing open surgery and their reasons; first time evaluation after therapy given; and examination performed when evaluation. All the questions were multiple choice questions and respondents could choose more than one answer except for question: *first time evaluation after therapy given*. Respondents may also provide their own answer apart from the given option for the following questions: diagnostic tools used; type of therapy given; reasons to do open surgery; first time evaluation after therapy given; and examination performed when evaluation. All of the choices given in the questionnaire were based on IUA BPH guideline's key recommendations.

IUA BPH guidelines divided examination into routinely performed examination and optional examination. Examinations considered as routinely performed examination are scoring system, digital rectal examination (DRE), urinalysis, uroflowmetry, postvoid residual urine (PVR), and prostate imaging that was further divided into transrectal ultrasound (TRUS) and transabdominal ultrasound (TAUS). Meanwhile, examinations that are considered as optional examination are kidney function test, prostate-specific antigen (PSA) test, urinary tract imaging, urethrocystoscopy, and urodynamic test. Furthermore, these guidelines also divided the indication to perform surgery for BPH patient into absolute indication, such as acute urinary retention, trial without catheter (TWOC) failure, recurrent urinary tract infection, retractable macroscopic hematuria, bladder stone, decreased renal function due to obstruction caused by BPH, and pathological change of bladder and upper urinary tract, and relative indication, such as moderate–severe International Prostate Symptom Score (IPSS), no improvement after nonsurgical treatment, and patient preference.

Before the questionnaire was distributed, it underwent reliability test using test–retest reliability, and it had reliability coefficient more than 0.9 in all questions.

2.4. Data measurement and presentation

To measure adherence, a scoring system was developed according to authors' agreement. Every examination which is recommended to be routinely performed by IUA BPH guidelines was given a score *+1* if it was offered by urologist. However, for other examination which is considered optional by IUA BPH guidelines, the given score was *0*. Score *0* will be given to all optional medical therapies chosen by urologists based on IUA BPH guidelines, except for phytopharmaca which is not recommended by IUA BPH guidelines and score *-1* will be given to every urologist who offered this therapy to patient. Moreover, urologists were given a score +1 for offering surgical therapy to absolute indications. To the urologist who performed open surgery, score *+1* was given if the indication to do open surgery was large prostate volume, but score *−1* was given for other indications. Therefore, the maximal score which can be achieved by each urologist is 14, and level of adherence will be determined by percentage of total score obtained by the urologist divided by maximal score.

Data were presented in descriptive fashion. Categorical data were presented as absolute value and its percentage. Several categorical data were presented as charts. Numerical data were presented as mean and standard deviation if the data had normal distribution or as median and range if the data did not have normal distribution. All of the data were processed using Statistical Package for the Social Science (SPSS), version 23.

The data were divided based on the first question in BPH management session which is respondent's guidance for BPH management. Only respondents who claimed to use IUA BPH guidelines as their BPH management guidance were taken into account for other questions.

2.5. Study's ethical committee approval

This study was approved by the Faculty of Medicine, Universitas Indonesia Ethical Committee: 976/UN2.F1/ETIK/2016.

3. Results

Of 352 respondents who fulfilled inclusion and exclusion criteria, 209 (59.4%) respondents returned the questionnaire. Demographic characteristics of respondents returning the questionnaire were presented in Table 1. Indonesian urologists could practice in three different hospitals, and this explained why the

Table 1
Demographic characteristics of respondents

Parameter	All respondents who filled out questionnaire	Respondents using IUA guidelines
N	209	199
Respondent's age[a)]	42 (30–75)	42 (30–75)
Length of work as urologist[a)]	7 (0.5–37)	7 (0.5–37)
Place of urology education[b)]		
Bandung	17 (8.1%)	15 (7.5%)
Jakarta	120 (57.4%)	115 (57.8%)
Surabaya	65 (31.1%)	62 (31.2%)
Yogyakarta	6 (2.9%)	6 (3.0%)
Others	1 (0.5%)	1 (0.5%)
Location of Service[b)]		
Sumatra	38 (18.2%)	36 (18.1%)
Java	143 (68.4%)	136 (68.3%)
Bali and Nusa Tenggara/Lesser Sunda	12 (5.7%)	12 (6.0%)
Borneo	10 (4.8%)	9 (4.5%)
Celebes	5 (2.4%)	5 (2.5%)
Moluccas and Papua	1 (0.5%)	1 (0.5%)
Center of Service[b)]		
Public hospital		
Yes	159 (76.1%)	153 (76.9%)
No	50 (23.9%)	46 (23.1%)
Private hospital		
Yes	117 (56.0%)	110 (55.3%)
No	92 (44.0%)	89 (44.7%)
Clinic		
Yes	4 (1.9%)	4 (2.0%)
No	205 (98.1%)	195 (98%)
BPH cases per month[b)]		
1–25 cases	69 (33.0%)	61 (30.7%)
26–50 cases	84 (40.2%)	83 (41.7%)
51–100 cases	30 (14.4%)	30 (15.1%)
>100 cases	26 (12.4%)	25 (12.6%)

BPH, benign prostatic hyperplasia; IUA, Indonesia Urological Association
[a)] Median (minimum–maximum).
[b)] n (%).

total number of respondent's center of services is more than the total number of respondents.

In managing BPH, 95.2% respondents used IUA guidelines as their practice guidance. Other guidance such as other guidelines (EAU, AUA, etc), textbook, or journal article were used by 63.2%, 23%, and 17.7% respondents, respectively. There were small proportions of respondents who used personal experiences (1.4%) and hospital practice guidelines (0.5%) as their practice guidance.

3.1. BPH diagnosis

Among respondents who used the IUA guidelines, the routinely performed and optional examinations were presented in Fig. 1. There were very small proportions of respondents who use renal ultrasonography (USG) (0.5%), Computed tomography scan (1%), and magnetic resonance imaging (0.5%) as their workup for BPH. Among respondents who offered prostate imaging to patients, 76.2% only offered TAUS, 4.4% only offered TRUS and 19.4% offered both examinations.

3.2. BPH management

After BPH was diagnosed, almost all respondents (99%) offered medical treatment to patients. Furthermore, surgery and conservative therapy (watchful waiting or lifestyle education) were also offered by most respondents (93% and 78.4%, respectively). However, only small proportion of respondents (27.1%) chose clean intermittent catheterization (CIC), cystostomy or indwelling catheter as their BPH management option.

As for medical therapy, alpha-blocker alone was chosen by most respondents (83.4%) followed by combination of alpha-blocker and 5α-reductase inhibitor (40.7%) and 5α-reductase inhibitor alone (16.6%). Other medical therapies, such as phosphodiesterase-5 inhibitor and combination of alpha-blocker and antimuscarinic were used by 0.5% and 10.1% respondents. Phytotherapy, which is not recommended by IUA BPH guidelines, was offered by 1% respondents. When medical therapies were given, patients were asked to return by respondents after 1 month (67.8%), 2 weeks (26.1%), 3 months (3%) or 1 week (2.5%).

Indications to perform surgery for BPH among respondents were presented in Fig. 2. There were only 54.8% of respondents who performed open surgery for BPH and mostly under the indication of large prostate volume (81.7%). Other reasons to performed open surgery were presence of bladder stones (22.9%), unavailability of endoscopy (13.8%), abnormality of bladder, such as diverticle (7.3%) and residency training program (7.3%).

3.3. Evaluation

In evaluating treatments, the following examinations were used: symptom scoring system (93.5%), medical therapy side effect (72.4%), uroflowmetry (46.7%), PVR (43.7%), urinalysis (25.6%), PSA (13.1%), DRE (8%) and TAUS (2%).

In the end, this study found median (minimum–maximum) of Indonesian urologist's adherence level toward BPH guidelines is 78.5% (28.6%–100%).

4. Discussion

BPH is a complex disease which commonly presented with LUTSs. Even though not fatal, this disease has a high burden effect due to high cost and bothersome symptoms which can decrease patient's quality of life.[6,7] Owing to advancement in medical equipment, there are many options of diagnostic tools and treatments. Therefore, to provide consistent, efficient, and high-quality of medical care based on current evidence, IUA created BPH practice guidelines for urologists and general practitioners. However, even though nearly all Indonesian urologists claimed to have used IUA BPH practice guidelines, this study found that there was still variation in their compliance to the clinical guideline. It might due to unavailability of facilities or difference in hospital management. However, this study did not further explore the reason behind the variation of guidelines compliance. Strope et al showed that geographic location, patient's comorbidity, and patient's age were associated with guidelines compliance.[10]

For diagnostic tools, variations were seen in both of routinely performed and optional examinations. Regarding routinely performed recommended examinations, nearly all respondents used DRE and TAUS for BPH workup and followed by symptom scoring system which used by most respondents. High performance of DRE was similar with previous study which showed that all Indonesian urologists considered LUTS as an indication to perform DRE examination.[13] Other routinely performed recommended examinations, such as urinalysis, uroflowmetry, PVR, and TRUS were only used by less than three-quarter of the respondents. However, not many routinely performed TRUS of the prostate. This might be due to unavailability of transrectal probe compared to transabdominal probe. Either TAUS or TRUS was recommended by IUA BPH guidelines to guide the selection of medical treatment or surgery.[12] For examinations considered as optional, less than half of respondents used it, except for kidney function test and PSA test. Based on IUA BPH guidelines, kidney function test was only performed when there is suspicion of renal impairment and PSA test was only performed when there is a possibility of prostate malignancy or helping to make

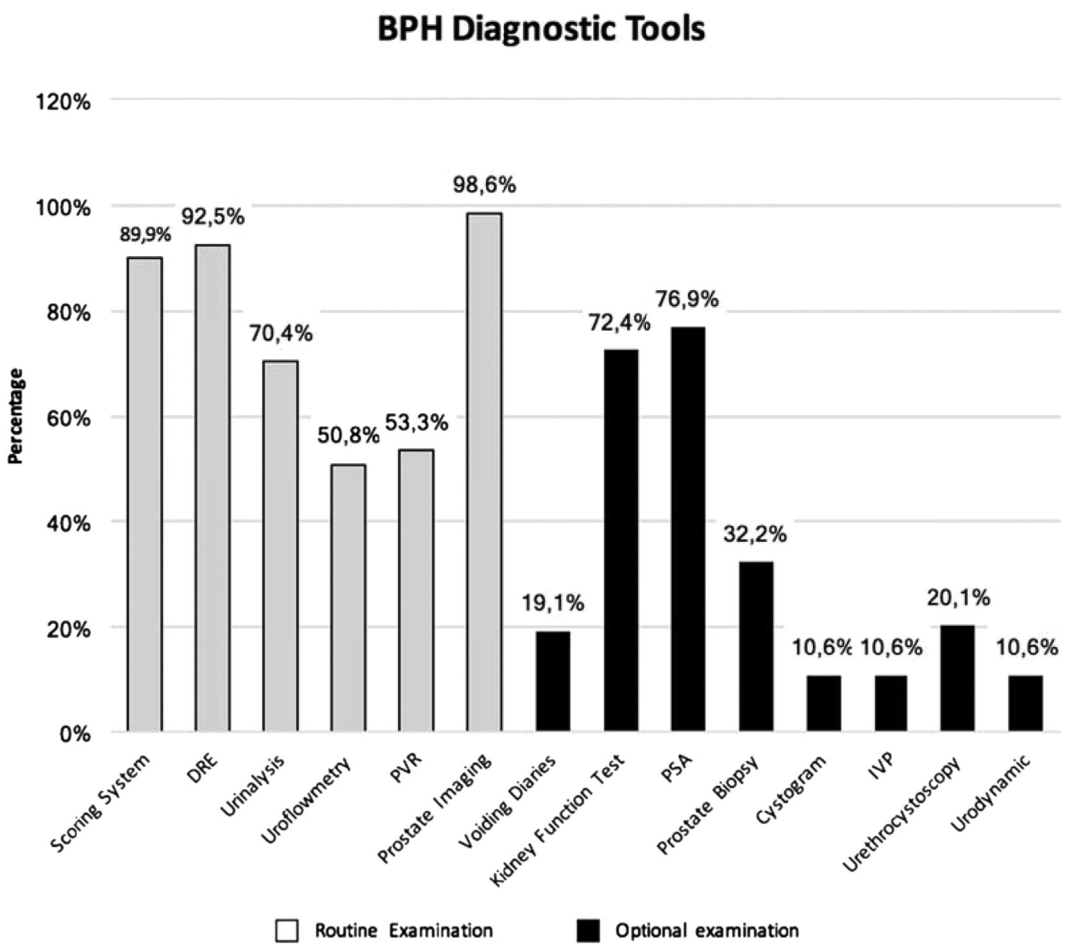

Fig. 1. Percentage of IUA's routine/optional examination used by respondents for BPH workup.
BPH, benign prostatic hyperplasia; DRE, digital rectal examination; IUA, Indonesia Urological Association; IVP, intravenous pyelogram; PSA, prostate-specific antigen; PVR, postvoid residual urine.

decision on progressive risk BPH.[12] However, if the facility to perform PSA examination is available, DRE should be completed with PSA examination because combination of both examinations is more superior to detect prostate cancer compared to DRE alone.[12] Therefore, it can be considered that the high number of DRE and PSA examinations which were done by Indonesian urologists was for prostate cancer screening. Variation in performance of BPH guideline's recommended examination was also reported by Tomaskovic et al which showed variation between 8 and 100%.[14] Tomaskovic et al's study refers to European Association of Urology and showed that DRE, ultrasound, PSA, urinalysis, and IPSS were performed by 100%, 100%, 100%, 81%, and 31% of respondents for their initial assessment, respectively.[13] Another study conducted in China showed that recommended diagnostic test, such as IPSS, DRE, urinalysis, PSA, ultrasonography, and uroflowmetry were used by 58.8%, 67.5%, 92.5%, 88.8%, 92.7%, and 31.2%, respectively; meanwhile in Korea, IPSS, DRE, urinalysis, PSA, uroflowmetry and TRUS were highly preferred for BPH initial assessment; 89–98% of urologists used it in general hospital.[15,16] These variations were thought to be caused by human resources, difference in availability of medical technology, cultural differences among urologists, and socioeconomic factors.[15,16]

Nearly all respondents considered medical therapy and surgical treatment as their treatment options. Small proportion of respondents considered CIC, indwelling catheter, or cystostomy for BPH treatment. This is parallel with IUA BPH guideline stating that CIC, indwelling catheter, and cystostomy were used only for specific situation.[12] For medical therapy options, most of the respondents choose alpha-blocker as their first choice of medical treatment, followed by combination of alpha-blocker and 5-alpha reductase inhibitor (5-ARI). This is similar to study conducted in Croatia, China, and Korea where alpha-blocker is a vanguard of medical treatment choice.[14–16] However, interestingly, study in Croatia showed that more than two-thirds of urologist would choose a combination of alpha-blocker and 5-phosphodiesterase inhibitor, half of them chose antimuscarinic, and more than 50% of them recommended phytotherapy.[14] This is contradictive to the results of this study which showed only small proportion of urologists preferred those treatments. IUA BPH guidelines recommend the usage of 5-phosphodiesterase inhibitor for those who have moderate–severe LUTS with or without erectile dysfunction and antimuscarinic for those with storage symptom dominance. The use of 5-ARI in combination with alpha-blocker is increasing in line with severity of LUTS. However, this study did not explore the choice of medical treatment based on severity of symptom.

This study showed low compliance in performing surgery based on indication stated by IUA BPH guideline. Only bladder stones and TWOC failure were considered by more than 85% of respondents as an indication of surgery even though IUA BPH guidelines stated that there were seven absolute indications of surgery in BPH patients. However, the reason behind the low compliance in performing surgery based on IUA BPH guidelines indication were not explored in this study, and this should be explored in further study.

With the advancement of minimally invasive technique in BPH surgery, open surgery is not considered as gold standard and only

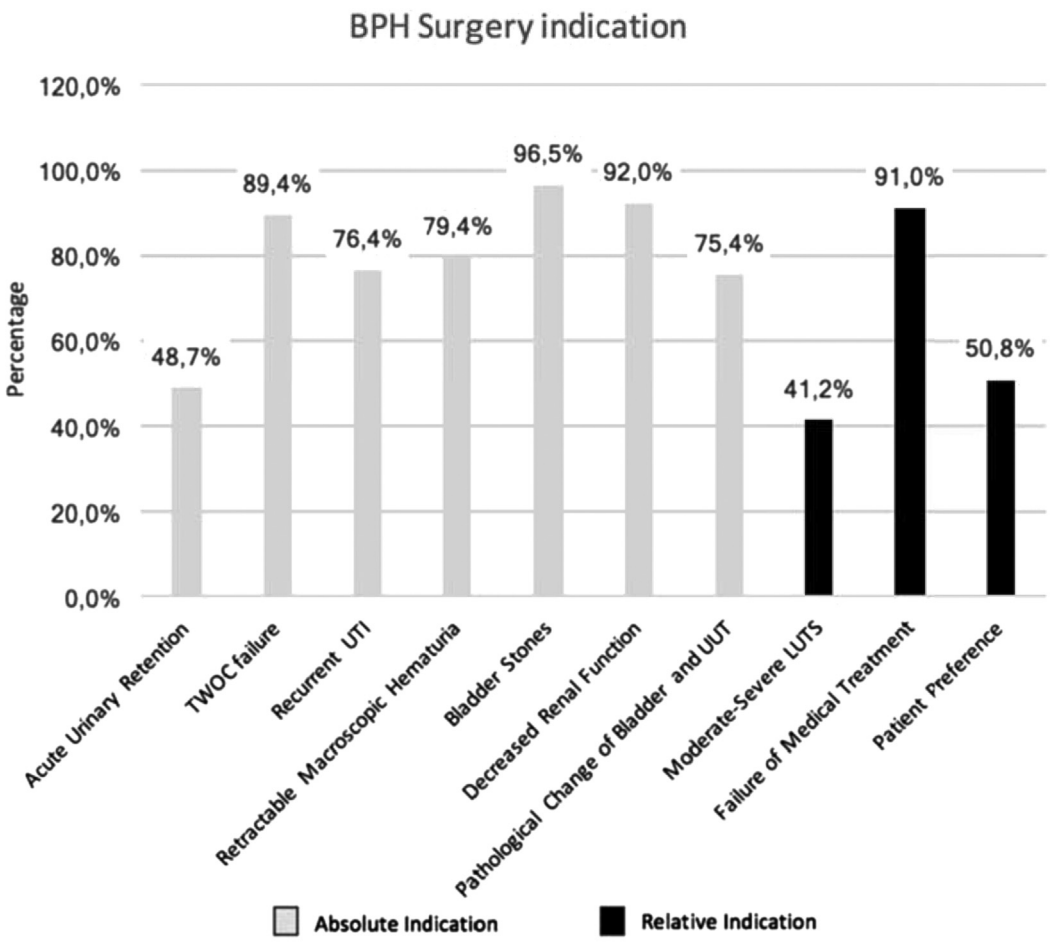

Fig. 2. Indication to perform BPH surgery among respondents using IUA guidelines
BPH, benign prostatic hyperplasia; IUA, Indonesia Urological Association; LUTS, lower urinary tract symptom; TWOC, trial without catheter; UTI, urinary tract infection; UUT, upper urinary tract.

recommended in patients with prostate volume larger than 80 ml and moderate–severe LUTS.[12] This recommendation is in line with our finding which showed that most of respondents performed open surgery due to large prostate volume, even though this study did not further explore the exact number of prostate volume. However, more than 40% of respondents did not perform open surgery and this might due to surgeon's skill to do minimally invasive technique, even in large prostate volume.[17] Moreover, almost quarter of respondents considered bladder stones as an indication to perform open surgery. However, today, open surgery due to bladder stone was also challenged by less-invasive surgery due to advancement in endoscopic technology even in the presence of large bladder stone.[18] This study also found that small proportion of respondents considered residency training program as an indication to perform open surgery. This happened because some respondents worked in teaching hospital which is the place to practice for urology residents or general surgery residents. After graduation, both residents will be placed in hospitals which might have limited facilities. Therefore, they should be given the opportunity to master the technique of open surgery so that later they can provide optimal service in hospitals with limited facilities.

For patient's follow-up, IUA BPH guidelines recommend to evaluate patient using IPSS, uroflometry, and PVR. Most of the respondents have already complied with the symptom scoring system as the evaluation tool. However less than half of respondents used uroflowmetry and PVR for evaluation.

Regarding level of adherence among Indonesian urologists toward BPH guidelines, there was no previous study which could become a benchmark regarding classification of adherence level toward practical guideline.

This was first study to explore Indonesian urologists' compliance to BPH guidelines and could also show Indonesian urologist's pattern care in treating BPH patients. This study had a good response rate of 59.4%, considering this study used e-mail as a primary tool to collect the data. This study could be the basis of further studies that essentially aim to improve patient care, especially in treating BPH effectively and efficiently with high quality of care.

This study concludes that Indonesian urologists have a good adherence toward guidelines in general. However, there is still wide variation of their adherence to it.

Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.prnil.2018.01.003.

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