

Patterns in the Diagnosis and Management of Benign Prostatic Hyperplasia in a Country that does not have Country-Specific Clinical Practice Guidelines

Jae-Seung Paick, Soo Woong Kim, and Ja Hyeon Ku

Department of Urology, Seoul National University College of Medicine, Seoul, Korea.

Purpose: We have evaluated the patterns of diagnostic and treatment practices for benign prostatic hyperplasia (BPH) in a country that does not have country-specific clinical practice guidelines. **Materials and Methods:** Probability samples were taken from the Korean Urological Association Registry of Physicians, and randomly sampled Korean urologists were asked to complete a questionnaire. The survey explored practice characteristics and attitudes, as well as diagnostic and treatment strategies, for the management of BPH. **Results:** Of the 850 questionnaires sent, 302 were returned, and 277 of those were included in the final analysis (response rate 32.6%). For the initial evaluation, most urologists routinely used digital rectal examinations (DRE) and urinalysis. Uroflowmetry was used 34.7% of the time. Pressure-flow studies were rarely done. Symptom assessment was used in only 46.9% of cases. In addition, a significant number (58.8%) reported that treatment decisions were not based on the symptom questionnaire. Before surgery, almost all urologists routinely used DRE, urinalysis, and prostate-specific antigen tests. Of the respondents, 55.6% and 41.9% had prescribed alpha-blockers and alpha-blockers with 5-alpha reductase inhibitors, respectively. 81.2% of urologists perceived that selective alpha-blockers are different in terms of efficacy, and 82.7% felt that they differed in safety. Most respondents prescribed 5-alpha reductase inhibitors based on the prostate size. **Conclusion:** These data provide a picture of current practices regarding the management of BPH in Korea. The diagnostic and treatment practices for BPH do not follow published guidelines. Our findings ask the question "How influential are international guidelines, and do they really affect patient management in countries that do not have country-specific guidelines?"

Key Words: Prostate, practice patterns, benign prostatic hyperplasia, prostatic neoplasms

Received January 23, 2006

Accepted September 10, 2006

Reprint address: requests to Dr. Ja Hyeon Ku, Department of Urology, Seoul National University Hospital, 28 Yongon-dong, Jongno-gu, Seoul 110-744, Korea. Tel: 82-2-2072-0361, Fax: 82-2-742-4665, E-mail: randyku@hanmail.net

INTRODUCTION

Benign prostatic hyperplasia is an important health problem of older men. By the age of 60 years, more than 50% of men will have microscopic evidence of the disease,¹ and more than 40% of men over this age will exhibit lower urinary tract symptoms.² During the last two decades, indications and treatment modalities in elderly male patients, presenting with symptoms of lower urinary tract dysfunction or benign prostatic hyperplasia, have changed dramatically. New technologies have become available for the treatment of benign prostatic hyperplasia, including pharmacological therapies, device therapies, and new surgical procedures.

To date, several clinical practice guidelines have addressed the optimal treatment of men with benign prostatic hyperplasia.³⁻¹⁵ The purpose of clinical practice guidelines is to reduce unwanted variation in practice and improve patient care by setting standards based on the best available evidence. In clinical areas in which there are numerous guidelines, however, there is considerable variation in the recommendations made.¹⁰ In addition, although guidelines provide a framework for evaluation and treatment, these leave a great deal of room for the personal opinions of individual physicians. We initiated a postal survey to determine practice characteristics, attitudes about benign prostatic hyperplasia, and diagnosis and treatment patterns in a country that does not have country-specific clinical practice guidelines.

MATERIALS AND METHODS

Probability samples were drawn from the Korean Urological Association Registry of Physicians and the survey was mailed to a random sample of 850 members in June, 2004. Selected physicians received a mailing which consisted of a cover letter describing the purposes of the survey, the survey itself, and a postage-paid, return envelope. The letter indicated that our department was conducting a study on practice patterns in the diagnosis and treatment of benign prostatic hyperplasia. Demographic and professional data from the urologists were collected, including age, sex, and type of practice. The questionnaire also requested information on diagnosis and treatment practices (See Appendix). The questionnaire was developed by the authors of this paper. Content was thoroughly reviewed and modified by additional experts. Pilot testing and subsequent person-to-person interviews were conducted on 5 urologists to ensure that the questionnaire items were relevant. Some of the questionnaire items were modified based on the feedback obtained. The layout of the print and the arrangement of the questionnaire were designed to allow it to be easily read and answered. Questionnaires were returned anonymously by mail.

Descriptive analyses were completed using the computer software program, SPSS 10.0 (SPSS, Inc., Chicago, IL, USA). A response was considered invalid if the question was left unanswered or if more than one answer was marked. Responses that generated a continuous distribution, such as procedures performed, and that were not normally distributed, were summarized by medians and interquartile ranges, representing the 25th and 75th percentiles of the distributions.

RESULTS

Responses were received from 302 members of the Korean Urological Association. Because some urologists did not answer correctly, 277 of these were included in the final analysis (response rate 32.6%, median age 42.0 with a range of 29-80). Of the respondents, 162 (58.5%) worked at private clinics, 46 (16.6%) worked at general hospitals,

and 69 (24.9%) worked at university hospitals. The median age of respondents was 42 years old (25th and 75th percentiles: 37 and 50) and median duration of practice as a urological specialist is 11 years (25th and 75th percentiles: 5 and 20) (See Appendixes 1 to 3).

Table 1 shows how often study subjects used various examinations and tests for initial evaluations and evaluations before the surgical treatment of men who had symptoms suggestive of benign prostatic hyperplasia (See Appendixes 4 and 5). For initial diagnostic assessments, the most commonly used tests were urinalysis (90.3%) and digital rectal examination (86.6%). Symptom assessment was used in 46.9% of cases. Of respondents, 163 (58.8%) reported that treatment decisions were not based on the symptom questionnaire (see Appendix 6). Although sonography of the prostate was performed by 45.5% of the urologists, less than 10% utilized other imaging studies, such as abdominal x-rays (7.9%), intravenous urography (0.7%) or renal sonography (3.6%). Prostate specific antigen examinations were performed in 62.5% of diagnoses, but cytologic examination in only 3.6%. Uroflowmetry and post-void residual measurement were performed in 34.7% and 33.6%, respectively, but pressure-flow studies in only 1.1%. Almost all the urologists reported that they used urinalysis, digital rectal examination and prostate specific antigen examinations for evaluations before surgical treatment. Before surgical treatment, nearly 80% of the respondents "almost always" measured transrectal ultrasonography, uroflowmetry and post-void residual, creatinine and symptom score.

Table 2 lists the use of various treatments for men with moderate symptoms and for men who request or want treatment (see Appendix 7). According to most guidelines, medical therapy was the main treatment for these patients. Of the pharmacological options, almost all urologists reported that they prescribed alpha-blockers. Of the respondents, 55.6% had prescribed alpha-blockers as the primary treatment and 41.9% prescribed alpha-blockers with 5-alpha reductase inhibitors as the primary treatment. Physicians with a practice duration of less than 10 years who had also worked at private clinics prescribed alpha-blockers and alpha-blockers with 5-alpha

APPENDIX

1. How old are you? () years old
2. How long have you been practicing as a urological specialist? () years
3. Where do you work?
 - 1) Private clinic
 - 2) General hospital
 - 3) University hospital
4. How often do you perform certain studies for the initial evaluation of a man with symptoms suggestive of benign prostatic hyperplasia?

Tests	Almost always	More than half the time	About half the time	Less than half the time	Rarely	Never
DRE						
Symptom score						
Creatinine						
PSA						
Urinalysis						
Urine culture						
Urine cytology						
Uroflowmetry						
PVR measurement						
Cystoscopy						
Abdominal x-rays						
TRUS						
Renal US						
IVU						
P-F study						

5. How often do you perform certain studies before surgical treatment of a man with symptoms suggestive of benign prostatic hyperplasia?

Tests	Almost always	More than half the time	About half the time	Less than half the time	Rarely	Never
DRE						
Symptom score						
Creatinine						
PSA						
Urinalysis						
Urine culture						
Urine cytology						
Uroflowmetry						
PVR measurement						
Cystoscopy						
Abdominal x-rays						
TRUS						
Renal US						
IVU						
P-F study						

6. Are your treatment decisions based on symptom questionnaires?
 - 1) Yes
 - 2) No
7. What would you recommend if men have moderate symptoms and request or want treatment?

Watchful waiting
 Alpha blockers
 5-alpha reductase inhibitors
 Alpha blockers with 5-alpha reductase inhibitors
 TUNA
 TUMT
 Laser prostatectomy
 Transurethral incision
 Transurethral resection of the prostate
 Open prostatectomy
 Others

8. Do you believe that all selective alpha-blockers are same in terms of efficacy?
 - 1) Yes
 - 2) No
9. Do you believe that all selective alpha-blockers are same in terms of safety?
 - 1) Yes
 - 2) No
10. When prescribing 5-alpha reductase inhibitors, what is your threshold of prostate volume?
 - 1) 10 - 19 g
 - 2) 20 - 29 g
 - 3) 30 - 39 g
 - 4) 40 - 49 g
 - 5) > 50 g
 - 6) Regardless of prostate volume
 - 7) I do not prescribe 5-alpha reductase inhibitors.

Table 1. Tests Performed by Urologists on Patients with Benign Prostatic Hyperplasia

Tests	AUA guidelines (2003) ⁹	EAU guidelines (2004) ¹³	Almost always	More than half the time	About half the time	Less than half the time	Rarely	Never
DRE	Recommended	Recommended	86.6/94.4	5.8/1.4	1.1/0.0	4.3/1.4	1.8/0.7	0.4/2.1
Symptom score	Recommended	Recommended	46.9/78.2	6.5/4.9	5.8/2.1	5.8/2.1	12.3/3.5	22.7/9.2
Creatinine	Not recommended	Recommended	23.1/78.9	2.9/1.4	3.2/0.7	9.0/1.4	17.7/4.2	44.0/13.4
PSA	Recommended	Recommended	62.5/94.4	12.6/0.7	6.5/0.0	5.8/0.0	8.7/1.4	4.0/3.5
Urinalysis	Recommended	Recommended	90.3/95.8	4.3/2.1	1.1/0.0	2.5/0.0	0.0/0.0	1.8/2.1
Urine culture			18.1/47.9	1.4/4.2	5.4/4.2	7.9/4.9	17.3/13.4	49.8/25.4
Urine cytology	Optional		3.6/13.4	2.2/2.8	3.6/7.7	5.1/8.5	18.8/24.6	66.8/43.0
Uroflowmetry	Optional	Recommended	34.7/81.7	6.1/2.1	6.9/2.1	5.4/1.4	6.1/0.0	40.8/12.7
PVR measurement	Optional	Recommended	33.6/76.8	7.2/3.5	9.7/4.9	8.3/3.5	16.2/5.6	24.9/5.6
Cystoscopy	Optional	Optional	0.7/26.8	1.1/7.0	3.6/8.5	6.9/12.7	30.7/27.5	57.0/17.6
Abdominal x-rays			7.9/26.8	1.1/3.5	5.8/4.9	3.2/2.8	21.7/18.3	60.3/43.7
TRUS	Optional	Optional	45.5/83.8	17.0/4.2	11.9/2.8	3.6/0.7	6.9/4.2	15.2/4.2
Renal US	Not recommended	Optional	3.6/13.4	2.5/4.9	7.9/12.0	9.7/12.0	31.0/32.4	45.1/25.4
IVU	Not recommended	Not recommended	0.7/11.3	2.5/8.5	4.3/12.0	7.6/7.7	33.9/35.9	50.9/24.6
P-F study	Optional	Optional	1.1/14.1	0.4/9.9	2.5/8.5	8.3/11.3	15.5/16.9	72.2/39.4

DRE, digital rectal examination; PSA, prostate specific antigen; PVR, post-void residual; TRUS, transrectal ultrasonography; US, ultrasonography; IVU, intravenous urography; P-F study, pressure-flow study.

Data presented are percentages of initial evaluation/evaluation before surgical treatment.

reductase inhibitors more frequently than their counterparts. 81.2% of urologists perceived that selective alpha-blockers are different in terms of efficacy and 82.7% felt they also differed in safety (see Appendixes. 8 and 9). When respondents were asked, "What is the prostate volume threshold at which you would prescribe 5-alpha reductase inhibitors?" One hundred three (37.2%) urologists replied "30-39 g" and 90 (32.5%) respondents reported "40-49 g" as their threshold. The other survey choices and responses were "10-19 g" chosen by 0 doctors (0.0%), "20-29 g" chosen by 15 doctors (6.4%), "> 50 g" chosen by 9 doctors (3.2%), "regardless of prostate volume" chosen by 40 doctors (14.4%) and "I do not prescribe 5-alpha reductase inhibitor" chosen by 20 doctors (7.2%) (see Appendix 10).

Comparisons according to the physician's demographics are shown in Table 3. Physicians who worked at private clinics reported that treatment decisions were not based on the symptom questionnaire more frequently than those who worked at general or university hospitals ($p < 0.001$). More physicians with practice durations of less than 10 years perceived that selective alpha-blockers are different in terms of efficacy ($p < 0.001$) and safety ($p = 0.001$) than those with practice durations of 10 years or greater.

DISCUSSION

Our data provide insights into the current evaluation and treatment of patients with benign

Table 2. Treatment for Men with Moderate Symptoms and for Men who Request or Want Treatment

	No. (%)	Duration as a urological specialist		Type of working hospitals	
		< 10 yrs	≥ 10 yrs	Private clinics	General or university hospitals
Watchful waiting	2 (0.7)	0 (0.0)	2 (1.4)	0 (0.0)	2 (1.7)
Alpha blockers	154 (55.6)	86 (63.7)	68 (47.9)	84 (51.9)	70 (60.9)
5-alpha reductase inhibitors	1 (0.4)	1 (0.7)	0 (0.0)	1 (0.6)	0 (0.0)
Alpha blockers with 5-alpha reductase inhibitors	116 (41.9)	45 (33.3)	71 (50.0)	76 (46.9)	40 (34.8)
TUNA	3 (1.1)	2 (1.5)	1 (0.7)	1 (0.6)	2 (1.7)
TUMT	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Laser prostatectomy	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Transurethral incision	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Transurethral resection of the prostate	1 (0.4)	1 (0.7)	0 (0.0)	0 (0.0)	1 (0.9)
Open prostatectomy	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

TUNA, transurethral needle ablation; TUMT, transurethral microwave thermotherapy.

Data presented are number (%).

Table 3. Comparison according to Physician's Demographics

	Duration as a urological specialist			Type of working hospitals		<i>p</i> value*
	< 10 yrs	≥ 10 yrs	<i>p</i> value*	Private clinics	General or university hospitals	
Treatment decision based on symptom questionnaire			0.184			< 0.001
Yes	61 (45.2)	53 (37.3)		46 (28.4)	68 (59.1)	
No	74 (54.8)	89 (62.7)		116 (71.6)	47 (40.9)	
Perceiving selective alpha-blockers are same efficacy			< 0.001			0.152
Yes	14 (10.4)	38 (26.8)		35 (21.6)	17 (14.8)	
No	121 (89.6)	104 (73.2)		127 (78.4)	98 (85.2)	
Perceiving selective alpha blockers are same safety			0.001			0.765
Yes	13 (9.6)	35 (24.6)		29 (17.9)	19 (16.5)	
No	122 (90.4)	107 (75.4)		133 (82.1)	96 (83.5)	
Threshold of prostate volume for 5-α reductase inhibitors						
10 - 19g	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	
20 - 29g	1 (0.7)	14 (9.9)		11 (6.8)	4 (3.5)	
30 - 39g	62 (45.9)	41 (28.9)		55 (34.0)	48 (41.7)	
40 - 49g	48 (35.6)	42 (29.6)		47 (29.0)	43 (37.4)	
> 50g	4 (3.0)	5 (3.5)		2 (1.2)	7 (6.1)	
Regardless of prostate volume	15 (11.1)	25 (17.6)		33 (20.4)	7 (6.1)	
I do not prescribe	5 (3.7)	15 (10.6)		14 (8.6)	6 (5.2)	

*Chi-square test.

Data presented are number (%).

prostatic hyperplasia by Korean urologists. The data are based on a nationwide survey. Respondents generally reported practices inconsistent with the published guidelines of benign prostatic hyperplasia in terms of examinations and tests for men with suspected benign prostatic hyperplasia.

Digital rectal examination, urinalysis, and use of a symptom questionnaire to assess the patient's symptoms have been recommended by most of the guidelines.⁷ The digital rectal examination is emphasized as an important test for identifying prostatic abnormalities. Several guidelines also suggested that the patient's quality of life be measured. In this survey, although digital rectal examination and urinalysis were performed routinely, symptom assessments have not been routinely used by a significant number of respondents. In addition, a significant number of respondents reported that treatment decisions were not based on the symptom questionnaire although, in most guidelines, treatment decisions were recommended on the basis of the severity of the patient's symptoms alone or, in addition, on the basis of how bothersome these were. Furthermore, the use of a symptom questionnaire can present an opportunity to more objectively monitor patient response to therapy.

The use of uroflowmetry and residual volume measurements, which are optional, according to most guidelines, varied among study subjects. However, a small minority seemed to perform upper tract imaging or cystoscopy routinely, according to the recommendation of selective use by most guidelines. Pressure-flow measurements also appeared to be determined infrequently.

The best treatment from the patient's viewpoint may differ from that believed by the physician to be the most efficacious treatment. Patients may prefer less effective therapy if it also has less risk or cost. Medical therapies are not as efficacious as surgical therapies but may provide adequate symptom relief with fewer and less serious associated adverse events. In this survey, nearly all urologists reported that they prescribed alpha-blockers (alone or combined with 5-alpha reductase inhibitors) for men with moderate symptoms and for men who request or want treatment. Meta-analyzed data from the Panel's evidence-based review suggest that alfuzosin, doxazosin,

tamsulosin, and terazosin are similarly effective in partially relieving symptoms, producing, on average, a 4-to-6 point improvement in the American Urological Association Symptom Index.⁹ In this survey, however, 81.2% of the respondents perceived that selective alpha-blockers are different in terms of efficacy. In addition, 82.7% of urologists perceived that selective alpha-blockers also differ in terms of safety. The adverse event profile appears slightly different between the four alpha-blocking agents; tamsulosin, for example, appears to have a lower probability of orthostatic hypotension but a higher probability of ejaculatory dysfunction associated with it than do the other alpha blockers.⁹ Large, well-designed, direct comparator trials are needed to substantiate claims of superior safety.

Data over the last five years suggest that larger prostates are associated with more progressive disease, and a greater likelihood of symptom progression,¹⁶ flow rate deterioration,¹⁷ increased prostate growth^{18,19} a urinary retention, and prostatic surgery.²⁰ Data from the Medical Therapy of Prostate Symptoms study indicates that alpha-blockers delay acute urinary retention but do not prevent it.¹⁶ In our study, although most respondents did not prescribe 5-alpha reductase inhibitors as a monotherapy, 41.9% of respondents reported that they prescribed alpha-blockers with 5-alpha reductase inhibitors as the primary treatment for the men with moderate symptoms and for men who request or want treatment. Generally, the combination of an alpha-blockers and 5-alpha reductase inhibitors is an appropriate and effective treatment for men with the lower urinary tract symptoms associated with demonstrable prostatic enlargement. At present, however, no absolute threshold values are provided. Most Korean urologists prescribed 5-alpha reductase inhibitors based on prostate size. Patients most likely to benefit from combination therapy are those in whom the baseline risk of progression is significantly higher, in general, than in patients with larger glands and higher prostate-specific antigen values.⁹

These findings suggest that local health care resources or cultural differences may influence practice patterns. In addition, although guidelines provide a framework for evaluation and treat-

ment, these leave a great deal of room for a physician's personal opinions. Irani et al.¹⁰ suggested that countries or organizations with no resources to create their own high-quality Clinical Practice Guidelines should adapt their practice policies from Clinical Practice Guidelines that score highly when formally appraised. Although the process of creating the international guidelines involved a review of the worldwide literature on the diagnosis and treatment of benign prostatic hyperplasia, local health care issues, such as socialized medical systems, manpower issues, availability of extensive technology, the unique perspective of local doctors, or cultural differences in urological practices should be considered when adapting practice policies from Clinical Practice Guidelines.²¹

Some aspects suggest a need for caution when analyzing the present data. First, the frequencies of the various pretreatment investigations are estimates deduced from a 6-step rank scale, inevitably leading to some inaccuracy as to the single number. Second, the survey response was only about 32.6%. Non-response must necessarily result in an increase in random sampling error larger than that which would be expected if most of the questionnaires had been returned. The statistical consequence of increased sampling error is that it makes it more difficult to detect small but real differences as significant. Third, a more serious consequence of non-response is non-response bias. Non-response bias occurs if the subjects who respond to a survey are consistently different from those who do not respond. We suspect that the non-responders were not interested in this survey and, therefore, might not be eager to follow clinical practice guidelines. Therefore, the true indifference of Korean urological practitioners to benign prostatic hyperplasia might have been underestimated by this survey. Unfortunately, though, because we have no demographic information on the non-respondents which might allow a comparison with respondents, the importance of this effect in our survey is unclear. Finally, our findings must be interpreted cautiously because our data on urologists' practice patterns are based on self-reported behavior, not actual behavior as measured by audit. Questionnaire studies can be criticized if

there are no cross-checks to assess the validity of the data.

Korean urologists currently prescribe alpha-blockers much more commonly than 5-alpha reductase inhibitors for men with benign prostatic hyperplasia. Examinations and tests on men with suspected benign prostatic hyperplasia are not generally consistent with published guidelines, as shown, in particular, by the less than routine use of the symptom score. Generally, international guidelines tend to be more non-prescriptive. In contrast, local guidelines need to be more prescriptive, as they can easily address country-specific issues and differences. Thus, our findings raise the following questions: "How influential are international guidelines, and do they really affect patient management in countries that do not have country-specific guidelines?"

ACKNOWLEDGEMENTS

We would like to thank all of the participating urologists of the Korean Urological Association for their cooperation in this survey.

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