

APPS

THE 1ST CONGRESS OF ASIAN PACIFIC PROSTATE SOCIETY

Satellite Symposium I

Consensus Meeting for Asian-Pacific BPH Guideline

Byung Ha Chung

Yonsei University Health System

Contents

- **Diagnosis and Treatment Guidelines for BPH**
- **Prostate Volume**
- **PSA value**
- **Symptom Assessment Questionnaires**
- **Treatment Patterns**

Diagnosis and Treatment Guidelines for BPH

(1) AUA 2010, EAU 2010 Guidelines

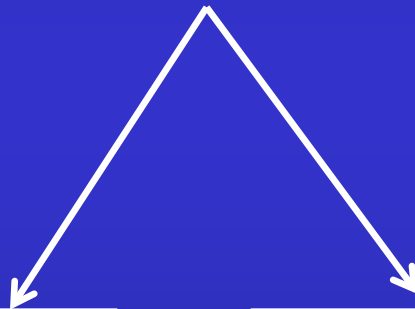
**(2) Survey - Australia, China, Chinese Taipei , Hong Kong
, Indonesia, Japan, Korea, Malaysia, Philippines**

	AUA (2003, 2010)	EAU (2004, 2010)
TRUS	Optional	Optional
UFM / PVR	Optional	Recommended



American
Urological
Association

2010 AUA Guidelines



Basic Management

Detailed Management

Basic Management of LUTS in Men

Initial Diagnosis

- Hx & P/Ex (DRE)
- Severity & Bother (AUA-SI)
- Urinalysis
- Serum PSA
- Freq/Vol Chart

Creatinine: Not routinely recommended

If life expectancy >10 yrs and/or
When significant nocturia is a predominant Sx

No or Little Bother

Reassurance & F/U

AUA-SI Score
Bother Score

Bothersome LUTS

Predominant Significant Nocturia
→ Freq/Vol Chart

No Polyuria

Complicated LUTS:

- SUSPICIOUS DRE
- HEMATURIA
- ABNORMAL PSA
- PAIN
- INFECTION³
- PALPABLE BLADDER
- NEUROLOGICAL DISEASE

Polyuria

- 1 Polyuria
24-hour output ≥ 3 liters
Lifestyle and fluid intake is to be reduced⁴
- 2 Nocturnal polyuria
≥33% output at night
Fluid intake to be reduced
- Consider other causes

STANDARD TREATMENT

- ALTER MODIFIABLE FACTORS
 - DRUGS
 - FLUID & FOOD INTAKE
- LIFESTYLE ADVICE

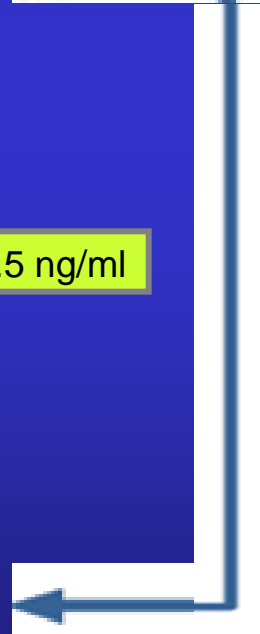
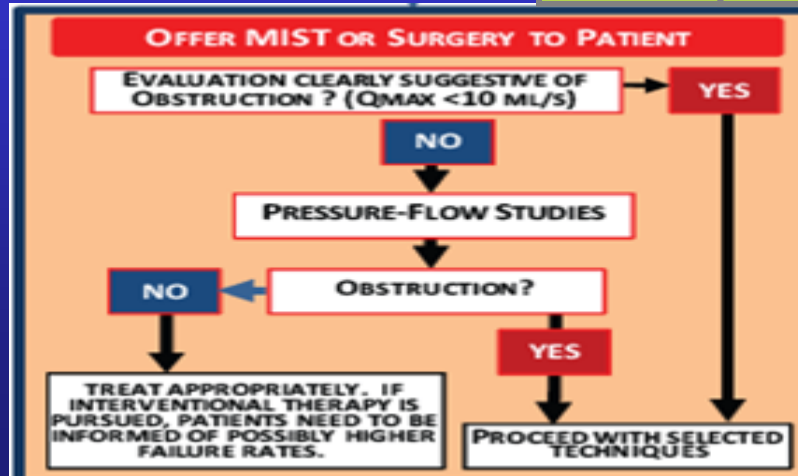
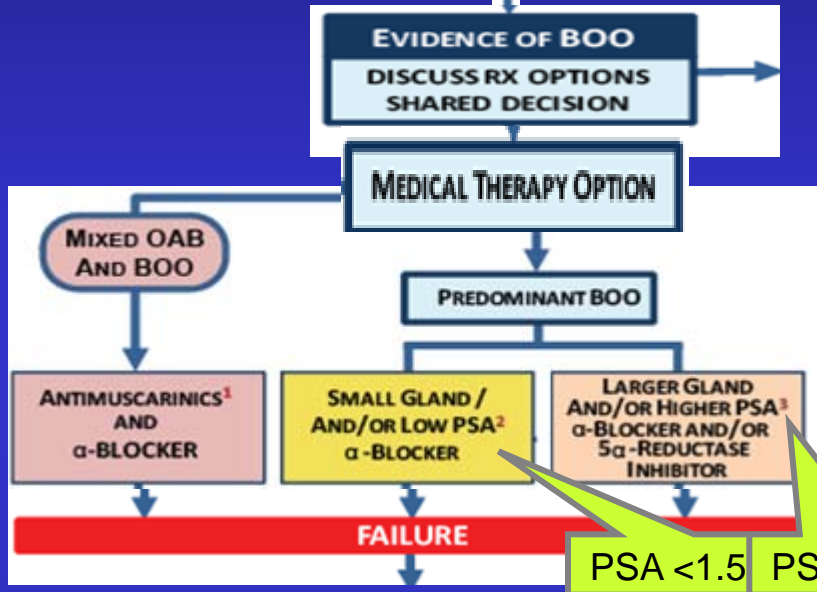
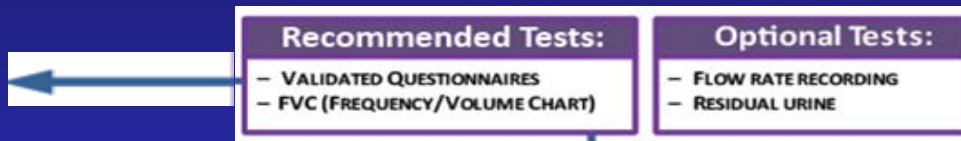
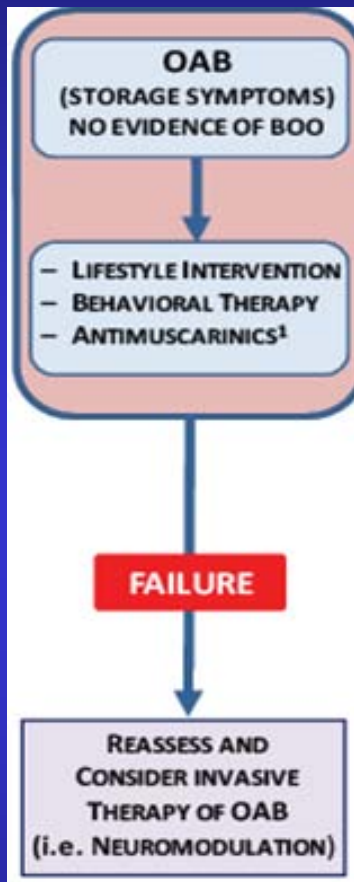
DRUG TREATMENT

Success
→ Continue Tx

FAIL

DETAILED MANAGEMENT

Detailed Management for Persistent Bothersome LUTS after Basic Management





Several Comments

5ARI

- **prevent** progression of LUTS secondary to BPH
- **reduce** the risk of urinary retention and future prostate-related surgery

- Should **NOT** be used, if **without prostate enlargement**

Other indication of 5ARI

- : **Refractory hematuria** presumably due to prostate bleeding (after exclusion of any other causes of hematuria)

Several Comments

Antimuscarinics

- effective treatment alternatives when LUTS are predominantly **irritative** (without an elevated PVR)

Complementary and Alternative Medicines (CAM)

- **No** dietary supplement, combination phytotherapeutic agent or other nonconventional therapy **is recommended**
- Available data : **Saw palmetto** DOES **NOT** have meaningful effect
- **Urticadioica** : **don't** provide a sufficient evidence base



Several Comments

Minimally Invasive Therapy

Safety recommendations for :

- Transurethral needle ablation of the prostate (**TUNA**)
- Transurethral microwave thermotherapy (**TUMT**)

Several Comments

Surgical Procedures

Indication of Surgery :

- renal insufficiency secondary to BPH
- recurrent UTIs, bladder stones or gross hematuria due to BPH
- LUTS refractory to other therapies
- The presence of a bladder diverticulum is not an absolute indication
(unless associated with recurrent UTI or progressive bladder dysfunction)

Several Comments

TURP

Appropriate and effective **primary alternative** for surgical therapy

Open Prostatectomy

Appropriate and effective treatment alternative for men with :

- **moderate to severe LUTS** and/or who **are significantly bothered by these symptoms.**

The choice of approach should be based on :

- the patient's presentation, anatomy, the surgeon's level of training & experience, and a discussion of the potential benefit and risks for complications.

Several Comments

Effective alternatives to TURP & Open prostatectomy - Laser Therapies

- Transurethral holmium laser ablation of the prostate (**HoLAP**)
- Transurethral holmium laser enucleation of the prostate (**HoLEP**)
- Holmium laser resection of the prostate (**HoLRP**)
- Photoselective vaporization of the prostate (**PVP**)

The choice of approach should be based on

: the patient's presentation, anatomy, the surgeon's level of training and experience, and a discussion of the potential benefit and risks for complications.

Several Comments

Laser Therapies

- Emerging evidence suggests a possible role of transurethral enucleation and laser vaporization as options for men with very large prostates (> 100 g).
- There are **insufficient data** on which to base comments **on bleeding**.

Other Surgical Options

- Transurethral incision of the prostate (**TUIP**)
- Transurethral vaporization of the prostate (**TUVP**)
- **Laparoscopic and robotic prostatectomy** (considered investigational)

EAU Guidelines

2004 EAU Guidelines

European
Urology

European Urology 46 (2004) 547–554

EAU 2004 Guidelines on Assessment, Therapy and Follow-Up of Men with Lower Urinary Tract Symptoms Suggestive of Benign Prostatic Obstruction (BPH Guidelines)

Stephan Madersbacher^a, Gerasimos Alivizatos^b, Jorgen Nordling^c, Carlos Rioja Sanz^d, Mark Emberton^e, Jean J.M.C.H. de la Rosette^{f,*}

Table 1

EAU 2004 recommendations regarding initial assessment for elderly men with LUTS suggestive of BPO

Assessment	EAU 2004 recommendation ^a
Medical history	recommended
Symptom score	recommended
Physical examination including DRE	recommended
Prostate specific antigen	recommended
Creatinine measurement	recommended
Urinalysis	recommended
Flow rate	recommended
Post-void residual volume	recommended
Pressure flow studies	optional
Endoscopy	optional
Imaging of the upper urinary tract	optional
Imaging of the prostate	optional
Voiding charts (diaries)	optional
Excretory urography	not recommended
Filling cystometry	not recommended
Retrograde urethrogram	not recommended
Computed tomography	not recommended
(Transrectal) magnetic resonance imaging	not recommended

^a For detailed information see text.

Table 2

EAU 2004 recommendations regarding treatment for elderly men with LUTS suggestive of BPO

Treatment	EAU 2004 recommendation ^a
Watchful waiting	recommended
Medical therapy	
α 1-blocker	
Alfuzosin	recommended
Doxazosin	recommended
Tamsulosin	recommended
Terazosin	recommended
5ARI	
Dutasteride	recommended
Finasteride	recommended
Combination therapy	
α 1-blocker plus 5ARI	recommended
Plant extracts	not recommended
Minimally invasive therapies	
High-energy TUMT	recommended
TUNA ^b	recommended
Prostatic stents ^c	recommended
Surgical therapies	
TUIP	recommended
TURP	recommended
Open prostatectomy	recommended
Transurethral holmium laser enucleation	recommended
Transurethral laser vaporization ^b	recommended
Interstitial laser coagulation ^b	recommended
Transurethral laser coagulation ^b	recommended
Emerging therapies	
Ethanol injection	
High-intensity focused ultrasound	
Water-induced thermotherapy	
PlasmaKinetic TM tissue management	

Several Comments

Watchful Waiting

Men with **mild symptoms** are suitable for **watchful waiting**

Men with LUTS should be offered **lifestyle advice** prior to or concurrent with treatment

Alpha Blockers

α -blockers should be offered to men with moderate to severe LUTS

5ARIs

Prevent disease progression with regard to AUR and need for surgery

Several Comments

Antimuscarinics

- moderate to severe LUTS, **predominantly** bladder **storage** symptoms
- **caution** is advised in men with **bladder outlet obstruction**

Phytotherapy

The Guidelines committee is **unable to make specific recommendations** about phytotherapy of male LUTS

Desmopressin

for the treatment of nocturia based on **a polyuric background**

Several Comments

Alpha Blocker + 5ARI

- Moderate to severe LUTS, enlarged prostates, and reduced Qmax (men likely to develop disease progression)
- Combination treatment is NOT recommended for short-term therapy (< 1 yr)

Alpha Blocker + Antimuscarinics

if symptom relief has been insufficient with the monotherapy of either drug

PDE5Is

inhibitors reduce moderate to severe male LUTS

Prostate Volume

(1) “ Large volume ” : “Cut-off points” ?

(2) Volume Measurement : DRE / TRUS / Abdominal SONO / MRI

(1) “ Large volume ” : “Cut-off points” ?

The prostate volumes of Korean men are smaller than those of the westerner !

<i>Racial difference</i>		<i>Korean</i>	<i>Westerner</i>	
Age group		Chung, et al.	Roehrborn, et al.	Mochtar, et al.
50-59	Baseline PSA (ng/ml)	1.6	2.1	2.6
	Baseline PV (ml)	31.5	39.3	37.7
60-69	Baseline PSA (ng/ml)	2.4	2.7	3.2
	Baseline PV (ml)	37.4	44.8	44.5
70-79	Baseline PSA (ng/ml)	2.9	2.9	3.8
	Baseline PV (ml)	36.9	43.7	43.9
All	Baseline PSA (ng/ml)	2.2	2.6	3.1
	Baseline PV (ml)	36.9	43.7	43.9

“ Large volume ” : “Cut-off points” ?

전립선비대증 환자에서 큰 전립선용적의 기준

Cut-off Point of Large Prostate Volume for the Patients with Benign Prostatic Hyperplasia

Jin Seon Cho, Chun Il Kim¹, Do Hwan Seong², Hong Sup Kim³, Young Sik Kim⁴, Se Joong Kim⁵, In Rae Cho⁶, Sang Hyeon Cheon⁷, Dong Hyeon Lee⁸, Won Jae Yang⁹, Young Deuk Choi⁹, Sung Joon Hong⁹, Young-Su Ju¹⁰, Yun Seob Song¹¹, Sun Il Kim¹², Byung Ha Chung⁹

대한
제 46 권 제 12 호 2005

한림대학교, ¹계명대학교,
²안화대학교, ³건국대학교,
⁴국미건강보험공단 임상병리

**Chung et al,
Korean J Urol 2006**

- 5716 Korean men
- PVs were obtained from **Roehrborn's equations**
- ROC curves - to evaluate the ability of PSA to predict threshold PV
- Average cut-off for Korean men 35cc

- Age Related PSA for PV >35 cc

50's → 1.2 ng/ml

60's → 1.6 ng/ml

70's → 2.0 ng/ml

- Caucasian 40 cc PV = Korean PV of 35 cc's

Table 3. ROC AUC values for predicting the prostate volume with using serum PSA, the overall age and by the decade of age, for the three prostate volume breakpoints in men with BPH

Age group (years)	No. of patients	Breakpoint to detect (ml)		
		30	35	40
All	5,716	0.755±0.0063	0.784±0.0064	0.814±0.0067
50-59	1,587	0.715±0.0131	0.762±0.0142	0.814±0.0157
60-69	2,606	0.740±0.0095	0.774±0.0095	0.806±0.0099
70-79	1,523	0.790±0.0113	0.785±0.0117	0.793±0.0122

(2) Volume Measurement

: DRE / TRUS / Transabdominal US / MRI

TRUS vs MRI vs RP specimen

**Chung et al,
Urol int 2006**

Original Paper

Urologia
Internationalis

Urol Int 2007;78:323–327
DOI: [10.1159/000100836](https://doi.org/10.1159/000100836)

Received: May 2, 2006
Accepted: May 29, 2006

Transrectal Ultrasound versus Magnetic Resonance Imaging in the Estimation of Prostate Volume as Compared with Radical Prostatectomy Specimens

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Department of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, Korea

- **Accuracy : MRI > TRUS**
- **However, TRUS is inexpensive & almost as accurate as MRI.**

TRUS vs Transabdominal US

UROLOGY - ORIGINAL PAPER

**Stravodimos KG et al,
Int Urol Nephrol 2009**

TRUS versus transabdominal ultrasound as a predictor of enucleated adenoma weight in patients with BPH

A tool for standard preoperative work-up?

**Konstantinos G. Stravodimos · Andreas Petrolekas ·
Theodoros Kapetanakis · Stavros Vourekas · Georgios Koritsiadis ·
Ioannis Adamakis · Dionysios Mitropoulos · Constantinos Constantinides**

** **TRUS** is more accurate than transabdominal ultrasound in predicting adenoma volume - its standard use might lead to fewer open approaches, with consequent less morbidity and hospitalization.*

Survey Results

Volume Measurement

: TRUS vs. Abdominal SONO

Survey

Initial evaluation – TRUS vs. Abdo SONO

	DRE	TRUS (Routine)	Abdominal SONO
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			No
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Malaysia



Zul kifli Zainuddin

Anthony Ng

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al)

PSA value

- PSA reference according to prostate volume
- PSA reference in Korean men

Relationship between serum PSA and prostate volume in Korean men

Chung et al, BJU 2006

Relationship between serum prostate-specific antigen and prostate volume in Korean men with benign prostatic hyperplasia: a multicentre study

BYUNG HA CHUNG, SUNG JOON HONG, JIN SEON CHO* and DO HWAN SEONG† for the Severance Urologic Oncologic Group

Departments of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, *College of Medicine, Hallym University, Chuncheon, and †Inha University, Incheon, Korea

Accepted for publication 17 October 2005

OBJECTIVES

To evaluate the relationship between prostate specific antigen (PSA) and prostate volume (PV) in Korean men, as PV is a key predictor of both disease progression and response to medical therapy in patients with benign prostatic hyperplasia (BPH), and PSA has been

peak urinary flow rate <15 mL/s); they had a mean age of 64.3 years, mean baseline PV of 36.9 mL, and mean baseline PSA level of 2.2 ng/mL. Men with a baseline PSA of >10 ng/mL were excluded, to reduce the likelihood of including occult prostate cancer. A biopsy was taken in those with suspicious findings on a digital rectal examination or

ROC curve analysis showed that PSA had good predictive value for various prostate volume thresholds (30, 40 and 50 mL).

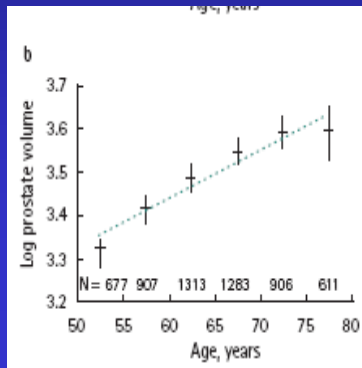
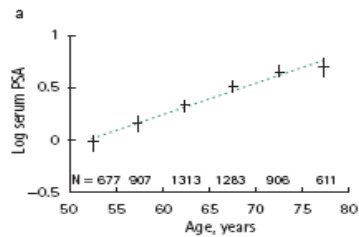
CONCLUSIONS

The PSA-PV relationship in Korean men is similar to that in Caucasians, but Korean men

Relationship between serum prostate-specific antigen and prostate volume in Korean men with benign prostatic hyperplasia: a multicentre study

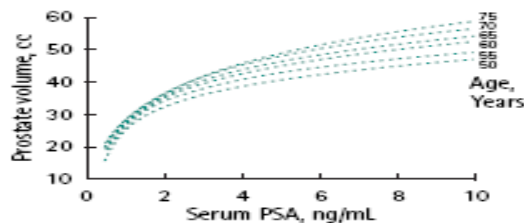
BYUNG HA CHUNG, SUNG JOON HONG, JIN SEON CHO* and DO HWAN SEONG† for the Severance Urologic Oncologic Group

FIG. 1. The log serum PSA level (a) and log PV (b) by age for patients with BPH. The predicted curve (dotted line) for PSA is given by $\log(\text{PSA}) = 0.0307 \times \text{age} - 1.590$, and for PV is given by $\log(\text{PV}) = 0.0117 \times \text{age} + 2.7422$.



- Log serum PSA level & log PV were linearly related to age
- **35.9% increase** in serum PSA level with each decade of life
- **12.4% increase** in PV with each decade of life.

FIG. 2. Predicted PV vs serum PSA level at various ages. The regression curve of PSA and PV for each age group is given by $\text{PV}_{(55)} = 28.84 \times \text{PSA}[0.208]$, $\text{PV}_{(65)} = 30.36 \times \text{PSA}[0.245]$ and $\text{PV}_{(75)} = 30.23 \times \text{PSA}[0.280]$ in the age groups 50–59, 60–69 and 70–79 years, respectively.



Predictive PV vs. serum PSA level at various ages

Conclusions

- **PSA-PV relationship** in Korean men is **similar to that in Caucasians**
- But, Korean men have **a slightly lower PSA level** and **a smaller PV** than Caucasians.

Koreans have different reference for PSA !!

Comparison of serum PSA levels among white, Japanese, and Korean men

Age Range (yr)	Reference range (95 th percentile level, ng/ml)				
	White	Japanese	Korean 1)	Korean 2)	Korean 3)
30-39	-	-	1.8	2.35	1.88
40-49	2.5	2.0	2.0	2.36	1.92
50-59	3.5	3.0	2.5	2.96	2.37
60-69	4.5	4.0	3.9	3.78	3.56
70-79	6.5	5.0	5.8	7.49	5.19

A given serum PSA value for a Korean man has a different clinical meaning for a white man of the same age !!

1) Lee, et al. Urology, 2000 2) Ku, et al. Urology, 2002

3) Jeon, et al. Korean J Urology, 2006



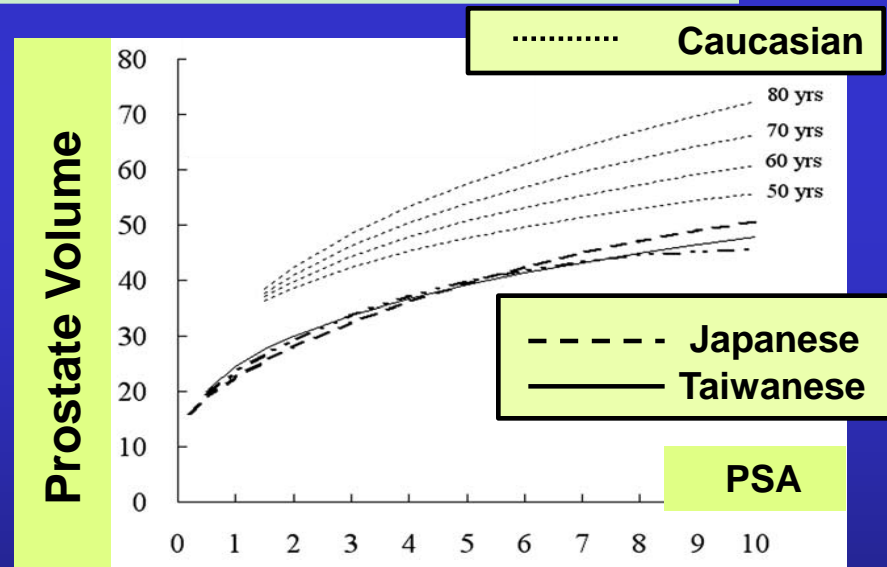
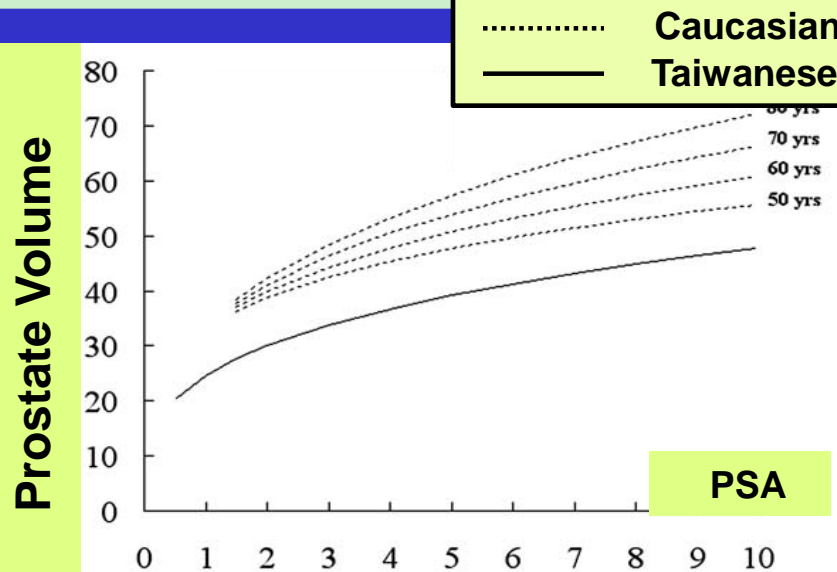
PSA and Prostate Volume ; Chinese Taipei

**Chang et al,
J Urol 2006**

Correlation Between Serum Prostate Specific Antigen and Prostate Volume in Taiwanese Men With Biopsy Proven Benign Prostatic Hyperplasia

Yu-Lung Chang, Alex T. L. Lin,* Kuang-Kuo Chen, Yen-Hwa Chang, Howard H. H. Wu, Junne-Yih Kuo, William J. S. Huang, Shing-Hwa Lu, Yen-Shen Hsu, Hsiao-Jen Chung and Shyh-Chyi Chang

From the Division of Urology, Department of Surgery, Taipei Veterans General Hospital and Department of Urology, National Yang-Ming University, School of Medicine, Taipei, Taiwan, Republic of China



**** PSA per unit prostate volume**

Taiwanese > Caucasian

Taiwanese = Japanese

Other Asian countries are also trying to establish their own PSA reference range!

Age (yr)	Serum PSA range (ng/ml)				Prostate volume (ml)		
	White ¹⁾	Japanese ¹⁾	Chinese ²⁾	Arab ³⁾	White	Japanese	Arab
40-49	0-2.5	0-2	0-1.2	0-0.9	13-51	9-33	8-22
50-59	0-3.5	0-3	0-2.4	0-1.6	15-60	9-35	9-27
60-69	0-4.5	0-4	0-3.2	0-2.9	17-70	10-37	9-30
70-79	0-6.5	0-5	0-3.4	0-5.5	20-82	11-40	10-33

(1) Kumamoto et al, BJU 1995 (2) Dalin He et al Urology 2004 (3) Kehinde et al BJU 2005

Survey

PSA vs. Prostate Volume

PSA vs. Prostate Volume



Philippines



Dennis Serrano



Zulkifli Zainuddin

Hideyuki Akaza

Yes

: PBx

official

de PBx

Symptom Assessment Questionnaires

(1) Validation of IPSS

- in each country's own language

(2) Other particular questionnaires of own country?

Treatment Patterns

(1) Results of Korean Survey

(2) Medical Treatment

- Alpha blocker , Vasopressin
- 5ARI
- Antimuscarinics

(3) Indication of Surgery and

Preferred Choice of Surgery

(1) Results of Korean Survey

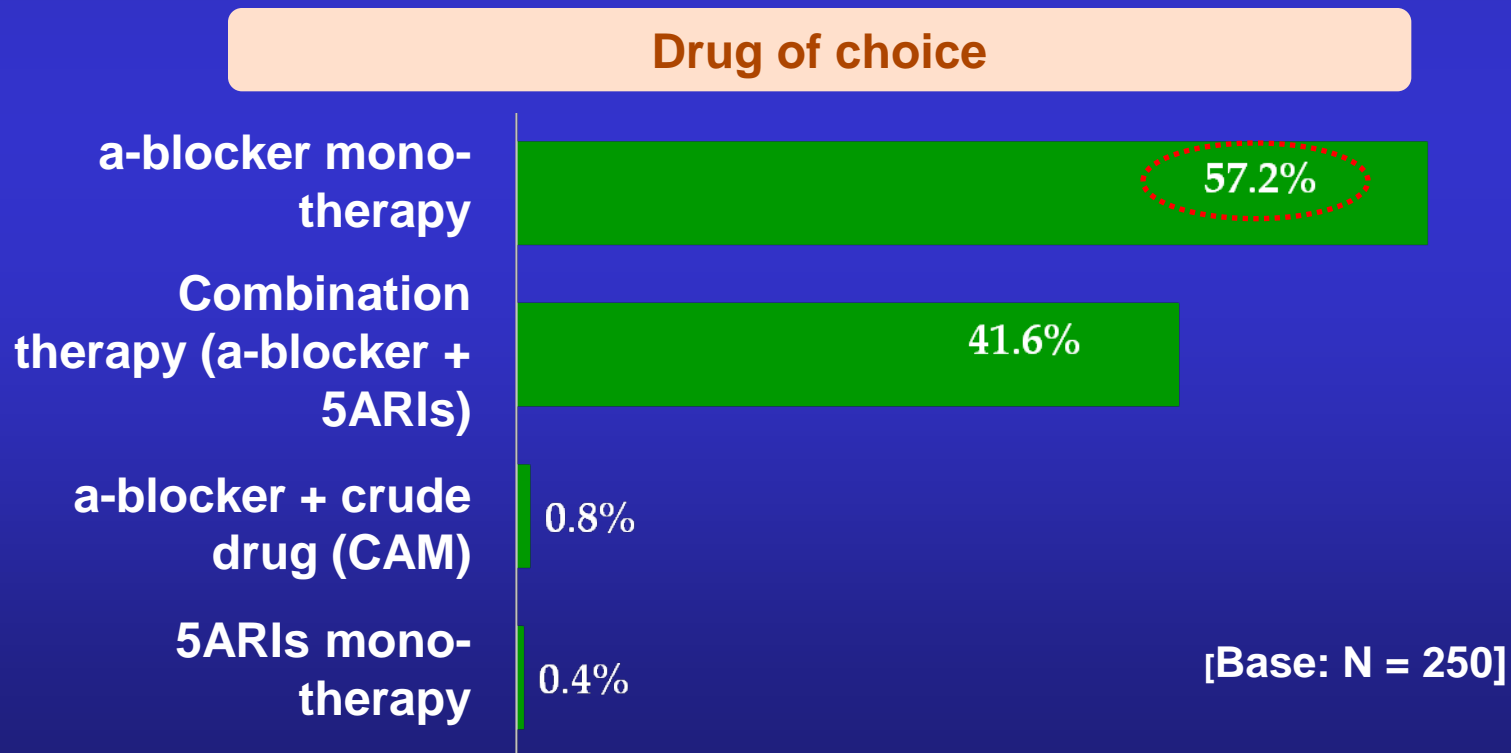
**Practice Patterns in The Medical Treatment of
Benign Prostatic Hyperplasia in Korea ;
A Nationwide Survey on 2007**

BH Chung et al. YMJ 2008

Drug of choice for initial treatment option for BPH patients

↪ *Alpha-blocker mono therapy was most common*

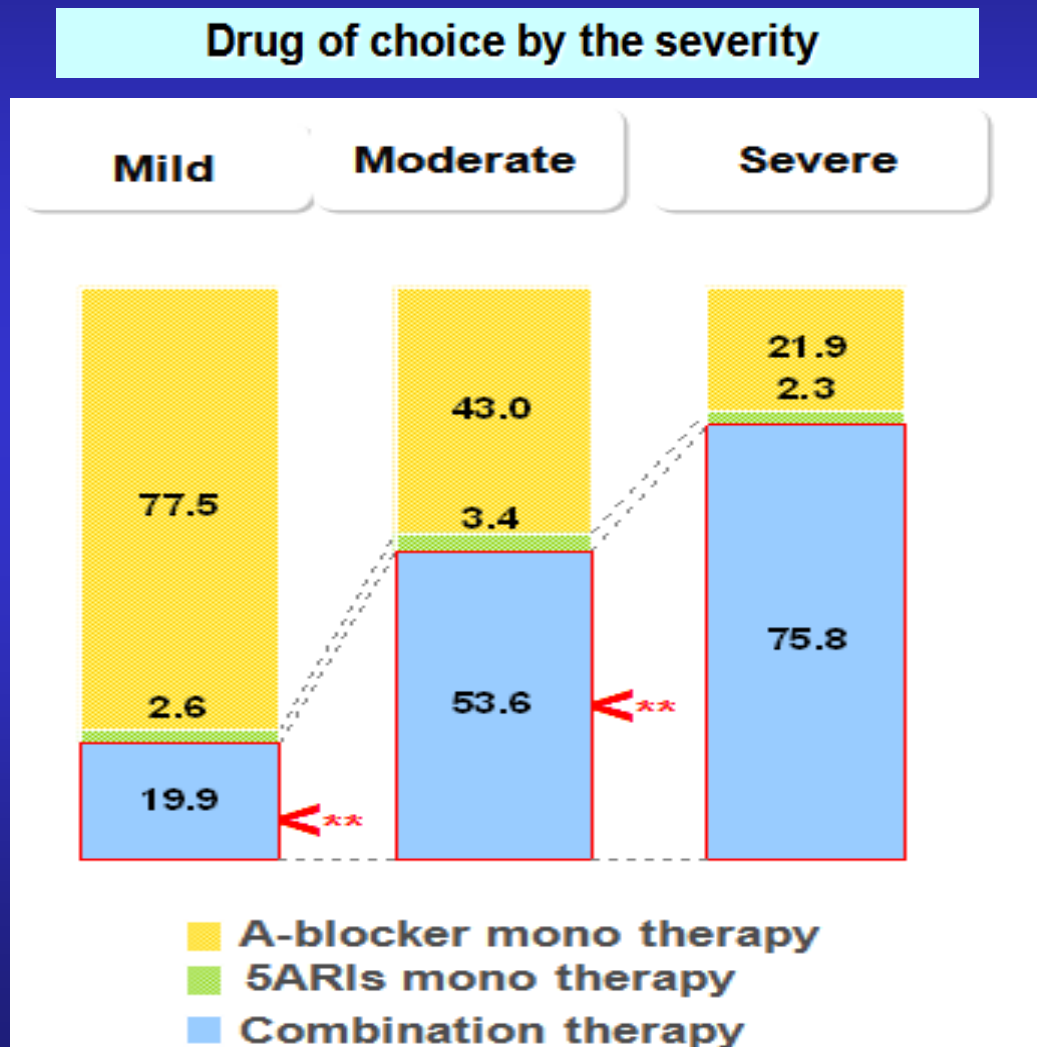
↪ *The proportion of the 'combination therapy' was somewhat high in general hospital*



Chung et al, YMJ 2008

Drug of choice by the severity grade of BPH

↪ The role of the 'combination therapy' was increased by the severity



(2) Medical Treatment

- **Alpha blocker , Vasopressin**
- **5ARI**
- **Antimuscarinics**

(3) Indication of Surgery & Preferred Choice of Surgery

Survey Results

- **Medical Treatment**
- **Surgical Treatment**

Survey

Alpha-blocker , Vasopressin

Chinese Taipei

Philippines



Dennis Serrano

Zulkifli Zainuddin

Hong-Jen Yu



Survey

5ARI

Ix of 5ARI

Chinese Taipei



Philippines

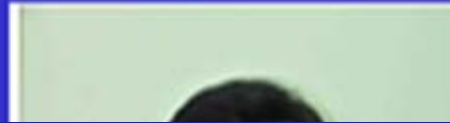


Malaysia



Zulkifli Zainuddin

Anthony Ng



30 gm



ry to AB

nt LUTS

Survey

BPH-related Surgery

Surgery

Open
Prostatectomy

Chinese Taipei

Philippines

Malaysia

Hong Kong

Anthony Ng



Conclusions (1)

- **Diagnosis and Treatment Guidelines for BPH**

- ➔ The guidelines of Asian-Pacific countries seem to be consistent with EAU / AUA guidelines.

- ➔ **Except** - TRUS : mandatory ?
- TRUS or Transabdominal US ?

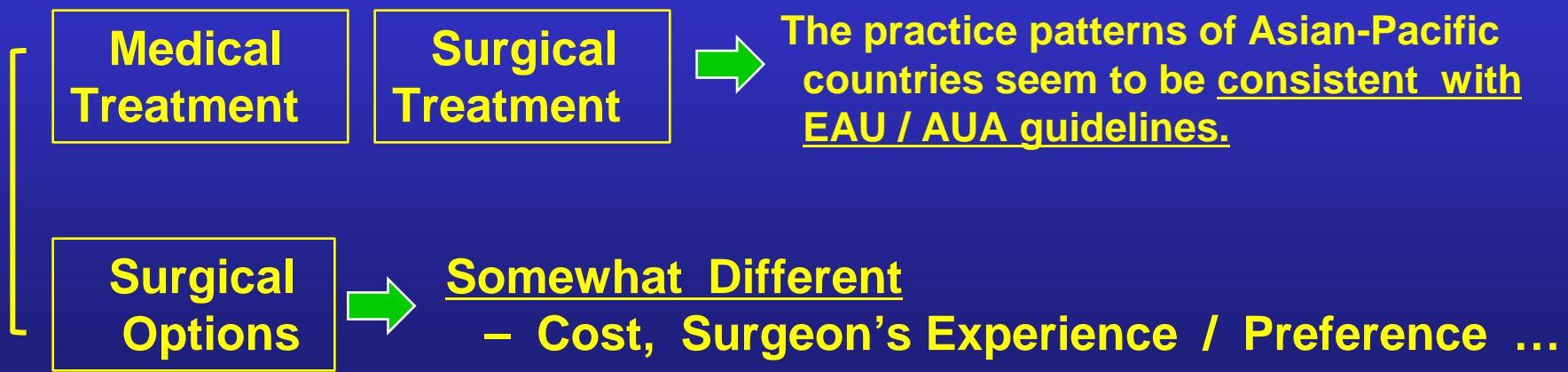
- **PSA / Vol or PSA reference**

- ➔ **Needs to have an Asian-Pacific-Specific reference !**

Conclusions (2)

- **Symptom Assessment Questionnaires**
 ➔ **Satisfactory in Asian-Pacific countries**

- **Treatment Patterns for BPH**





Thank You for Your Attentions !!

