

## Benign prostatic hyperplasia

### *The Saudi perspective in the year 2000*

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#### ABSTRACT

All published data on benign prostatic hyperplasia in Saudi Arabia was reviewed. The age of presentation of the benign prostatic hyperplasia Saudi patient is between 60 and 70 years. Until the introduction of medical therapy for benign prostatic hyperplasia, presentation by complication was common, mainly by retention of urine in 40-50% of the cases. Diagnostic modalities are improving and both biochemical and imaging techniques are now available. Medical therapy for benign prostatic hyperplasia is widely used but studies on only 2 alpha adrenergic blocking agents out the 5 pharmacological preparations currently in the field were reported. Those are Prazosin and Terazosin. Several studies on the use of the 5-alpha reductase enzyme inhibitor Finasteride were also reported. Minimally invasive surgery, other recent techniques including laser technology and standard surgical techniques such as open prostatectomy and Trans-urethral Resection of the Prostate are reported to be efficiently utilized. The workload due to benign prostatic hyperplasia is increasing and estimated currently to be 20-40% of the whole urological workload. Late and complicated presentations still pose a serious medical problem. Screening programs and enhancement of awareness are required to ensure early presentation. The diagnostic modalities have improved and need to further improve by making both PSA testing and ultrasonography as standard procedures. Most advanced methods of medical and surgical treatment are available. More studies researching all aspects of benign prostatic hyperplasia are needed to improve patient care.

**Keywords:** Benign prostatic hyperplasia, perspective, year 2000.

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**D**ata from benign prostatic hyperplasia (BPH) prevalence studies has demonstrated that there are no significant geographical or ethnic variations, and that the prevalence of BPH increases with age. Benign prostatic hyperplasia is the most common benign neoplastic condition affecting elderly men. The make up of the Saudi population is that of a predominantly young generation, but the proportion of BPH affected men would be expected to be the same as other countries in the aged male populations. At the age of 80 years, 90-100% of men have evidence of microscopic BPH, 50% have evidence of macroscopic enlargement and only 25% have evidence of clinical BPH. The importance of BPH is

related not only to the size of the problem, but mainly to its effect on the quality of life. The size of the problem can be estimated according to the percentages derived from western studies but best be determined by locally conducted epidemiological studies. Since ageing and the presence of functioning testes are the 2 main risk factors for developing histopathological BPH, no differences would be expected to be observed between the Western and Saudi prevalence rates within comparable age matched groups of populations. However, there are profound cultural differences that may affect many aspects of symptomatic and clinical BPH. The quality of daily life is also affected differently. The

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voiding habits among Saudis, their perception of symptoms, motivation for seeking medical advice, clinical presentation, acceptance of diagnostic methods and treatment modalities certainly differ from their Western peers of elderly men. The progress of knowledge and medical care given were reflected by the types and the amount of studies published or presented over the recent years from Saudi Arabia. The data will be presented herein in a chronological order, discussing the various clinical aspects of BPH from the Saudi point of view. Those include the epidemiological data available, clinical presentation, current methods of diagnosis, and the available treatment modalities.

**Epidemiology.** Saudi Arabia is a vast country with an area of 2.25 million square kilometers and a population of 18.8 million, 70% of whom are Saudi nationals.<sup>1</sup> The population density is 8.03 individual per square kilometer.<sup>1</sup> The exact prevalence rate of BPH in Saudi Arabia, as based upon properly conducted epidemiological studies, is still unknown. Currently, the size of the problem can only be estimated. Using the figures mentioned previously, and presuming that 50% of people living in Saudi Arabia are males,<sup>1</sup> the number of those above 50 years can be extrapolated. The numbers for those with histopathological, clinical and symptomatic BPH can be further derived. Similarly, knowing the rates of growth and ageing, these numbers can be estimated for the future. It is reported that we have a rate of one new born per minute in Saudi Arabia, the highest rate in the whole world, even higher than China, India and Egypt.<sup>2</sup> It is estimated that the Saudi population will reach 39,000,000 in the year 2022 and 367,000,000 in the year 2097.<sup>2</sup> However, accurate numbers for the BPH prevalence rate can only be reached by a properly conducted epidemiological study. A proposal for a national epidemiological study was put forward by Mosli et al in 1994.<sup>3</sup> So far, this has not been carried out because of lack of the necessary funds and manpower. Currently, a prospective community-based epidemiological study is underway in the Jeddah area. Hospital based information was reported by Abomelha et al and others over the years 1994-1998.<sup>4-6</sup> At Asir Central Hospital (ACH) 4% of the admissions were due to prostatic diseases.<sup>5</sup> The workload for prostatic diseases was estimated to be 10% for the urologists at Riyadh Armed Forces Hospital (RAFH) reported in 1994,<sup>4</sup> while the workload was 20-40% in the survey study conducted by the Saudi Prostate Health Council (SPHC) reported in 1998.<sup>6</sup> The main related co-morbidities that may affect BPH diagnosis and management are; diabetes mellitus (14%), pulmonary disease (15%) and hypertension (7.5%).<sup>5</sup> The incidence rate for each of diabetes mellitus and hypertension is about 10% of the local population. Eleven percent of the

patients presented to a primary care center complaining of genitourinary disorders.<sup>7</sup> Seventy percent of those were referred for specialized treatment by the urologist.<sup>7</sup> This information leads to the understanding that, in Saudi Arabia, the primary managing physician for BPH patients is the urologist. The concept of an exclusive specialty for geriatric care is still not well developed in this country.<sup>8,9</sup> Furthermore, Al-Khudair and his colleagues reported in 1998 that digital rectal examination (DRE) was not adequately administered in both the medical and surgical services at their tertiary care teaching hospital throwing the load on the urology service to carry out this important screening clinical examination.<sup>10</sup> The age at presentation of most of our Saudi BPH patients is between 60-70 years. Table 1 shows that although some of the patients present at an early age yet, the average age at presentation is around 70 years. The characteristics of age related adenoma and gland size were reported by Mosli et al in 1999.<sup>11</sup> For the 50-70 year old group of men, the average gland weight was 39 grams as measured by transrectal ultrasonography (TRUS) and 22 grams is the average weight of the resected glandular adenoma. Abomelha and his RAFH group reported in 1999 on 403 Symptomatic BPH Saudi patients the prostate glands of whose were found to be small in 37.5%, moderate in 58% and large in 4.5%.<sup>12</sup>

**Clinical presentation.** Benign prostatic hyperplasia clinical presentation is either by symptoms or by BPH related complications. In regards to symptoms, there has been no study detailing the most frequent or bothering symptom in the Saudi BPH patients. Dysuria is a term used to describe burning sensation at micturition, painful micturition and difficulty of voiding. It would be better to describe each of these symptoms individually when recording the case history in the future. The rest of the symptoms are shown in Table 2. In a recent study, Abomelha and his RAFH group reported on 403 symptomatic BPH Saudi patients. Thirty one percent had mild symptoms, 67% had moderate and 2% had severe lower urinary tract symptoms (LUTS).<sup>12</sup> Knowing the nature of the Saudi individual, the most bothering symptoms are properly dribbling and incontinence, although not commonly reported. Complicated presentation is seen in a large proportion of our BPH patients. In general those are: acute retention of urine (AUR), upper tract dilatation and renal failure, bladder stones, bladder diverticulae and recurrent infection and hematuria. Table 3 shows the distribution of BPH patients presenting with retention of urine in various Saudi health centers. At ACH, 8% of the BPH patients treated by prostatectomy presented with renal insufficiency and 4% with upper tract dilatation on imaging.<sup>13</sup> At KAUH, 9% of the patients treated surgically presented with renal

**Table 1** - Age at benign prostatic hyperplasia presentation in several Saudi medical centers.

| Center/year of report             | No. of patients | Range  | Average Age |
|-----------------------------------|-----------------|--------|-------------|
| KAUH/9914                         | 212             | 50-91  | 64.3        |
| KAUH/9715                         | 67              | 50-80  | 62.0        |
| RAFH/944                          | 604             | 50-100 | 70.8        |
| RAFH/9912                         | 403             | 50-100 | 65.7        |
| RMC/9416                          | 380             | 42-120 | 69.9        |
| DHC/9417                          | 320             | 42-95  | 67.0        |
| ACH/965                           | 253             | 42-80+ | 70.0        |
| Abha/9918                         | 140             | 49-100 | 67.0        |
| New Jeddah Clinic/KFH-Madina/9713 | 70              | 51-86  | 68.4        |
| Al-Ahsa/200019                    | 246             | 50-87  | 65.5        |

No. - number; KAUH - King Abdulaziz University Hospital; RAFH - Riyadh Armed Forces Hospital; RMC - Riyadh Medical Center; DHC - Dhahran Health Center; ACH - Asir Central Hospital

insufficiency while 0.5% only of all BPH patients in the RAFH series presented with renal insufficiency.<sup>4</sup> The rest of the complicated presentations of the patients seen at KAUH are shown in Table 4. This complicated presentation may reflect that the period of time preceded the recent medical advances in Saudi Arabia and the widespread availability of medical services with the introduction of medical treatment for BPH. Perhaps the following reports will

**Table 2** - Benign prostatic hyperplasia symptomatology in 205 surgically treated patients.

| Symptom            | Number | %  |
|--------------------|--------|----|
| Dysuria            | 162    | 79 |
| Nocturia           | 135    | 66 |
| Weak stream        | 126    | 61 |
| Dribbling          | 111    | 54 |
| Frequency          | 105    | 51 |
| Hesitancy          | 84     | 41 |
| Interrupted stream | 69     | 34 |
| Urgency            | 62     | 30 |
| SP Pain            | 40     | 20 |
| Incontinence       | 29     | 14 |

SP - supra-pubic

**Table 3** - Benign prostatic hyperplasia patients presenting with retention of urine as compared to international reports.

| International reports | KAUH              | RAFH             | RMC               | ACH-KSU           | Bin Jalawi Hospital |
|-----------------------|-------------------|------------------|-------------------|-------------------|---------------------|
| 20-30% <sup>15</sup>  | 53% <sup>14</sup> | 41% <sup>4</sup> | 57% <sup>16</sup> | 54% <sup>13</sup> | 35% <sup>19</sup>   |

KAUH - King Abdulaziz University Hospital; RAFH - Riyadh Armed Forces Hospital; RMC - Riyadh Medical Center; ACH - Asir Central Hospital; KSU - King Saud University

show a decline in the complicated presentation of BPH mainly that by retention of urine and upper tract dilatation.

**Diagnostic modalities in use.** Quantification of symptoms by the International Prostatic Symptom Score (IPSS) is recommended for the baseline assessment of symptom severity, response to therapy and to monitor disease progression in the follow-up period. In 1995, Mosli et al presented a validation study for the use of IPSS in the Arabic form.<sup>20</sup> This was recommended for the use of Arabic speaking BPH patients.<sup>20</sup> However, in 1996 Mosli carried out a survey study on urologists practicing in the Western Region of Saudi Arabia and showed that only 25% of them used symptom score indices.<sup>21</sup> In 1998, the national survey study conducted by the Saudi Prostate Health Council (SPHC) revealed that there is 60% general usage of IPSS.<sup>6</sup> Physical examination and DRE are adequately carried out by urologists.<sup>6,20</sup> Laboratory work up excluding Prostate Specific Antigen (PSA) is widely available. PSA is available in 29% only of Ministry of Health (MOH) hospitals and 100% of all other hospitals.<sup>6,20</sup> Therefore, MOH hospitals would not be a valid source of data in regard to PSA-based screening for prostate cancer among BPH and other patients. In regard to imaging, IVP was considered to be the imaging modality of choice in Saudi Arabia for BPH patients till very recently.<sup>6,20,21</sup> Ultrasonography is now properly used to examine the urinary tract and estimate the post void residual amount of urine.<sup>6,20,21</sup> Similarly, recording maximum flow rates of urine (Q max) in LUTS symptomatic patients has increased over the recent years.<sup>6,20</sup> Survey studies revealed that other urodynamics mainly pressure/flow studies have not been equally utilized.<sup>6,20</sup>

**Therapeutic modalities in use.** Until the recent advents of non-surgical and minimally invasive treatment modalities for BPH, urologists in Saudi Arabia like elsewhere had to select either watchful waiting or surgery for the management of BPH. For the severely symptomatic patients and complicated cases the decision was fairly straight forward, but no doubt was difficult at times. Errors in judgement and the lack of assessment tools that became available only recently had certainly contributed to patients

**Table 4** - Complicated presentation in 205 BPH patients surgically treated in KAUH.

| Presentation                                    | Number | %  |
|---|--------|----|
| Retention                                       | 108    | 53 |
| Bladder stones                                  | 22     | 11 |
| KUB stones                                      | 31     | 15 |
| Hematuria                                       | 30     | 15 |
| KUB - Kidney, Ureter, Bladder<br>% - percentage |        |    |

dissatisfaction and mistrust. The latter remained undocumented but certainly felt by most urologists. This experience has been reflected as inhibitory factors on the patients to seek medical advice regarding urinary symptoms and made them resist surgical treatment because of fear of complications. Therefore, once the medical treatment for BPH had become available it was welcomed widely and used quickly. Several studies reported the successful use of Finasteride and alpha adrenoreceptors blockers. In 1995, Al-Jasser et al reported the results of the use of Prazosin and Proscar for 200 symptomatic BPH patients.<sup>22</sup> They concluded that Proscar was well accepted and that the main problem with Prazosin was hypotension with a general 20-40% partial or complete response rate.<sup>22</sup> Recently, Abomelha and the RAFH group reviewed their experience in the medical treatment of Saudi patients with symptomatic BPH. The study comprised 403 medically treated BPH patients seen over 5 year period and was reported in 1999.<sup>12</sup> They concluded that medical treatment of symptomatic BPH patients with Prazosin alpha-blocker is efficient in the majority of patients with minimal adverse effects. Combined therapy of alpha-blocker and Finasteride can further increase success rates and the need for

surgery is significantly reduced.<sup>12</sup> Prazosin was used even in patients with AUR by the same group. They reported in 1999 on 97 Saudi patients who presented with BPH related AUR.<sup>23</sup> Using Prazosin alpha-blocker, surgery was avoided in 47 patients (65.5%) who continued to void when given the trial, and their symptoms improved constantly on follow-up.<sup>23</sup> In 1996, Al-Shemiemri et al reported that Terazosin can be as effective as Finasteride after 2 years of use for 100 BPH patients.<sup>24</sup> The follow-up of these patients was presented in 1998 to show that medical treatment achieved a significant improvement in IPSS, uroflowmetry and residual urine, and Terazosin had shown the same efficacy in those parameters with or without the use of Proscar.<sup>25</sup> On the other hand, Ayyat from Dhahran Health Center (DHC) reported in 1994 on the use of Proscar alone in 320 BPH patients.<sup>17</sup> Two hundred and forty patients were evaluable, 180 of them had Qmax measured before, 3 and 6 months post treatment. There was subjective improvement in their symptoms in 79%.<sup>17</sup> Minimally invasive intervention for BPH was mentioned only briefly in the Saudi literature. Abomelha and the RAFH group reported in 1992 a study conducted on 21 patients treated with balloon dilatation.<sup>26</sup> They concluded that balloon dilatation of the prostate is a simple, safe alternative procedure for the treatment of small or moderate BPH in high risk patients with satisfactory results.<sup>26</sup> On the other hand, Onuroa et al from RMC reported in 1994 that intra prostatic stenting "urolume" was used in 2 patients among 380 BPH patients.<sup>16</sup> One patient had balloon dilatation. The results of both treatments were poor.<sup>16</sup> Microwave thermotherapy was used by Riad from Al-Mouwasat Hospital in Dammam.<sup>27</sup> He reported in 1993 on 119 patients. Twenty five (21%) of them were in retention of urine and with indwelling catheters before treatment. Transurethral Microwave Thermotherapy (TUMT) failed in 40 patients who were further re-catheterized or underwent TURP. He concluded that TUMT was not seen as a replacement

**Table 5** - Summary of 6 reports on Transurethral Electro-Vaporization of the Prostate.

| Author/Center                                  | Year | Loops                 | Results compared to TURP |
|--|------|-----------------------|--------------------------|
| Ayyat/DHC <sup>28</sup>                        | 1995 | roller electrode      | excellent                |
| Ayyat/DHC <sup>29</sup>                        | 1996 | grooved double barrel | same                     |
| Al-Khudair et al/KFNGH - Jeddah <sup>30</sup>  | 1996 | conventional          | same                     |
| Shokeir et al/NJC & KFH - Madina <sup>13</sup> | 1997 | grooved spiky roller  | same                     |
| Talic/KKUH <sup>31</sup>                       | 1998 | vaportome resection   | safe, as good as TURP    |
| Talic/KKUH <sup>32</sup>                       | 1999 | wing resection loop   | excellent results        |

DHC - Dhahran Health Center, KFNGH - King Fahad National Guard Hospital, NJC - New Jeddah Clinic, KFH -King Fahad Hospital, KKUH - King Khalid University Hospital

**Table 6** - TURP and prostatectomy in the major Saudi medical centers.

| Center                             | Period | Number of patients | Surgery (%) | TURP (%) | Open (%)  |
|------------------------------------|--------|--------------------|-------------|----------|-----------|
| RAFH <sup>33</sup>                 | 88-92  | 562                | 363 (65)    | 313 (86) | 50 (14)   |
| RMC <sup>16</sup>                  | 91-93  | 380                | 315 (83)    | 287 (91) | 28 (9)    |
| KAUH <sup>14</sup>                 | 85-95  | 205                | 205 (100)   | 192 (94) | 13 (6)    |
| KFU - Dammam <sup>34</sup>         | 82-91  | 179                | 177 (99)    | 125 (71) | 52 (29)   |
| ACH - Abha <sup>5</sup>            | 87-93  | 253                | 248 (98)    | 182 (73) | 66 (27)   |
| Bin Jalawi - Al Ahsa <sup>19</sup> | 89-99  | 246                | 199 (81)    | 156 (63) | 43 (17.5) |

RAFH - Riyadh Armed Forces Hospital  
 RMC - Riyadh Medical University  
 KAUH - King Abdulaziz University Hospital  
 KFU - King Faisal University  
 ACH - Asir Central Hospital  
 \* - Series consisted of surgically treated BPH patients only.  
 (%) - percentage

for all surgery, but could provide a safe and less invasive alternative for selected patients.<sup>27</sup> The use of Laser was first reported in Saudi Arabia from the King Abdulaziz University Hospital (KAUH) group in Jeddah.<sup>15,35,36</sup> In 1994, they presented their initial experience and published it in 1996 and 1997.<sup>15,35,36</sup> The Nd:YAG-KTP laser was used for the treatment of 67 patients, 23 of them were in retention of urine. Visual Laser Ablation of the Prostate (VLAP) produced a durable improvement in the symptom scores and urine flow rates of patients with symptomatic BPH without the development of bladder neck contracture. Even for patients presenting with BPH related retention of urine, VLAP was found to be a promising alternative treatment.<sup>15,35,36</sup> There were 6 reports on the use of Transurethral Electro-vaporization of the Prostate (TEVP).<sup>13,28-32</sup> These are summarized in Table 5. Transurethral resection of the prostate and open prostatectomy remain to be the golden standards of BPH surgical treatment. Yet, the statistics on the yearly frequency of this surgery are lacking in Saudi Arabia. Table 6 summarizes some important information that can be analyzed to estimate the size of the problem, morbidities and costs involved.<sup>14</sup>

**Discussion.** The age of presentation of the BPH Saudi patient is between 60 and 70 years. Until the recent introduction of medical therapy for BPH, presentation by complication was common, mainly by retention of urine in 40-50% of the cases. Diagnostic modalities are improving and both biochemical and imaging techniques are now available. Medical therapy for BPH is widely used but studies on only 2 alpha adrenergic blocking agents out of the 5 pharmacological preparations

currently in the field were reported. Those are Prazosin (Minipress, manufactured by Pfizer) and Terazosin (Itrin, manufactured by Abbott). Several studies on the use of 5-alpha reductase enzyme inhibitor Finasteride (Proscar, manufactured by MSD) were also reported. Minimally invasive surgery, other recent techniques including laser technology and standard surgical techniques, such as open prostatectomy and TURP are reported to be efficiently utilized.

In conclusion, only a little information is known about the epidemiology of BPH in the Saudi culture. The urological workload due to BPH has been progressively increasing in recent years. Late and complicated presentations still pose a challenging problem. Screening programs and enhancement of public awareness to ensure early presentation are required. The diagnostic modalities have improved and need to further improve. Most advanced methods of treatment are available but we need to eliminate misuse. More studies researching all aspects of BPH are needed in the Kingdom of Saudi Arabia to further optimize patient's care.

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