Pattern Of Prostatic Diseases In Saudi Arabia

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Citation

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Abstract

The aim of this retrospective case series study is to determine the pattern of prostatic diseases in Saudi Arabia by analyzing Prostatic specimens from 535 patients presented at our institute during period of thirteen and half years and by review of reported literature from the Kingdom. 54 (10%) of these cases were malignant prostatic adenocarcinomas with mean age of presentation 66.8 and rests were benign. Among benign 440 (82.2%) of specimens were diagnosed as having adenomuscular hyperplasia with mean age of presentation 64.3, 133 (24.9%) were having chronic prostatitis, 17 (3.1%) cases were having acute prostates (mean age 65.1) and 5 (0.9%) cases were having chronic granulomatous prostatitis (mean age 67). 16 other studies presenting pattern and incidence of prostatic diseases (mainly malignant cases) were also discussed and analyzed. It was found that the incidence of prostatic adenocarcinoma was lower in Saudi population, as compared to West.

INTRODUCTION

Within the past decade or so, there has been a sudden increase of interest in diseases of the prostate. This is largely due to the recently perceived high incidence of prostatic carcinoma in different geographical and ethnic groupings.[1] Attention has naturally focused more on malignant, as well as premalignant, lesions of the prostate.[2] Carcinoma of the prostate is the most common form of cancer in males in the United States, second only to lung cancer. Figures reported from United States are: annual number of deaths from prostate cancer = 32,203 (1998)[3]; Cases of prostate disease reported annually = 2.8 million (1996)[3]. Recently, the premalignant lesions have also become better defined, largely as a result of advances in technology. As most of the literature is focusing more on malignant prostatic lesions, we have attempted to delineate a complete pattern of prostatic lesions by also analyzing the benign lesions as well as inflammatory lesions of prostate in Saudi Arabia with review of the relevant literature. This aim led us to analyze all prostatic specimens received in the department of Histopathology at King Abdul Aziz University hospital (a tertiary care teaching Hospital, Jeddah) and to review the reported literature from the Kingdom.

MATERIALS AND METHODS

King Abdul Aziz University Hospital is a tertiary care teaching hospital located in Jeddah. It covers mainly cases from local Jeddah population and some referral cases from surrounding areas. Prostatic specimens from 535 patients were received in the histopathology department of King Abdul Aziz University Hospital, Jeddah, during thirteen and half years from January 1987 through June 2000 were included in the study. These were needle prostatic biopsies, transurethral prostatic resection (TURP) chips, as well as suprapubic prostatectomy specimens. All prostatic lesions were categorized into benign and malignant, and among benign lesions pattern of prostatic hyperplasia and inflammatory disorders were also tabulated, with their frequency and age distribution. The lesions were analyzed with following parameters: prostatic hyperplasia were categorized in two classes as: “glandulostromal” where there was excess glandular proliferation over stromal or were roughly equal; those sections which show mostly stromal elements over glands or were made up of entirely stromal component were categorized as “stromal”.

Inflammatory changes within prostate glands (excluding prostatic urethral mucosa) were separated into acute, chronic and granulomatous inflammatory changes. Malignant lesions were kept as one category and included cases of prostatic adenocarcinoma. These lesions were not further graded into subcategories in the present study and were mainly analyzed for their mean age of presentation, median, mode and standard deviation.

The literature was searched for all those papers reporting incidence of prostatic lesions from the Kingdom. Sixteen such articles were found and were reviewed. Most of these articles provided information on cancer rates in Saudi Arabia in general and some presented prostatic carcinoma rates specifically in various regions. The numbers of prostate

cancer cases were extracted from these studies and were tabulated in table I. All these studies derived their data from hospital-based experience, except for one national-based report[4]. The reviewed papers presented the experience of medical centers in Central, Eastern, Western and Southern regions of Saudi Arabia.

Figure 1

Table I: Summary of the papers published from various regions of Saudi Arabia about Prostate Cancer.

Author	Hospital	Region	Period in Years	No. Of cases	Crude rate*
Mahboubi (10)	KFSH	Central	10	121	-
Ezzat et al.(11)	KFSH	Central	17	1192	-
Ajarim (18)	KKUH	Central	5	27	6.20%
Al Jasser et al.(19)	SFH	Central	2	12	-
Koriech et al.(12)	RAFH	Central	11	59	2%
Koriech et al.(13)	RAFH	Central	11	59	2%
Al Otaiby et al.(14)	RAFH	Central	12	256	-
Al Khudair et al.(15)	KFNGH	Central	13	74	-
Rabadi (24)	DHC	Eastern	4	18	4.20%
Ibrahim et al.**	KAAUH	Western	13	54	
Stirling et al.(25)	JCH	Western	2	7	-
Tandon et al. (20)	KFCH (Gizan)	Southern	10	46	3.93%
Khan et al. (21)	ACH	Southern	1	9	2.30%
Ghali et al. (23)	Abha	Southern	6	17	6.80%
Willen et al. (22)	KFH (Al Baha)	Southern	6	14	4.20%
Al Hamdan et al.(4)	MOH	National	1	137	2.70%
Total / Mean			124	2194	3.80%

* Crude frequency rate; ** present study

RESULTS

A total of 535 histopathological prostatic specimens were studied in the current study. Among these, there were 59 (11%) needle prostatic biopsies, 466 (87%) transurethral prostatic resection (TURP) chips, and 10 (0.8%) supra-pubic prostatectomy specimens. All prostatic lesions were categorized into benign and malignant, and among benign lesions pattern of prostatic hyperplasia and various inflammatory disorders were also calculated. 54 (10%) of them were malignant prostatic carcinomas (adenocarcinoma) and rests were benign. Among benign 440 (82.2%) of specimens were diagnosed as having adenomuscular hyperplasia, 133 (24.9%) were having chronic prostatitis, 17 (3.1%) cases were having acute prostatitis and 5 (0.9%) cases were having granulomatous prostatitis. 4 cases of these granulomatous prostatitis were confirmed having tuberculosis. The mean age of presentation for each category are: for malignant prostatic carcinoma cases was 66.8 (n=54, Median=67, mode=70, Std. Deviation=10.8); for benign prostatic hyperplasia cases was 64.3 (n=440, median=65, mode=60, Std. Deviation=10.9,); for acute prostatitis was 60.9 (n=17, median=60, mode=60, Std. Deviation=8.96); for chronic prostatitis was 65.1 (n=133, median=65, mode=60, Std. Deviation=12.04) and for granulomatous prostatitis was 67 (n=5, median=67, mode=66,). The benign prostatic hyperplasia was further categorized into glandulostromal pattern and pure stromal pattern. Among these 396 (90%) cases were showing glandulostromal pattern and 44 (10%)were showing mainly stromal pattern. The mean age of presentation for these two patterns separately was slightly lower for the later group i.e. glandulostromal = 65 and for stromal 52. The age distribution of benign and malignant pathological lesions are graphically represented in graph I and II.

Figure 2

Graph I: Age distribution of benign and malignant prostatic diseases.

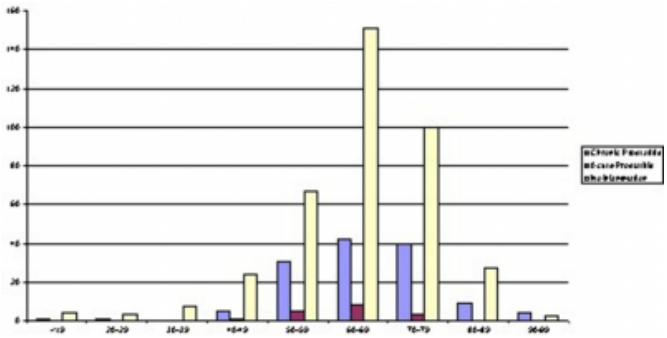
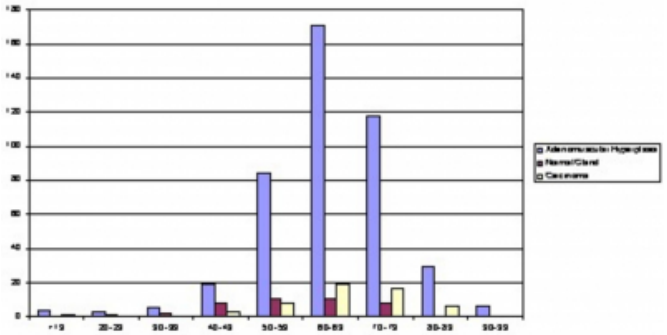


Figure 3

Graph II: Age distribution of chronic and acute prostatitis.



DISCUSSION

Carcinoma of the prostate is the most common form of cancer in males (followed closely by lung cancer) and the second leading cause of cancer death. It is currently estimated that in United States approximately 200,000 new cases are detected every year, of which approximately one-fifth prove to be lethal.[5] In addition to these lethal neoplasms, there is an even more frequent anatomic form of prostatic cancer in which the cancer is discovered as an incidental finding, either at postmortem examination or in a surgical specimen removed for other reasons, e.g., nodular hyperplasia. In almost all these instances, the lesions are small and comprise only microscopic foci. Approximately 90% of these lesions do not cause trouble in the lifetime of

the host.[6] Cancer of the prostate is a disease of men over age 50. The age-adjusted incidence in the United States is 69 per 100,000. Much more revealing, however, are the age-specific rates, which are 4.8 in the 45- to 49-year age group but increase to a staggering 513 between the ages of 70 and 75 years.[7] The incidence of latent prostatic cancer is even higher. It increases from 10% in men in their fifth decade of life to approximately 60% in men in their eighties.[7] There are some remarkable and puzzling national and racial differences in the incidence of this disease. Prostatic cancer is extremely rare in Asians.[8,9] The age-adjusted incidence (per 100,000) among Japanese is in the range of three to four and for the Chinese in Hong Kong only one, as compared with a rate of 50 to 60 among whites in the United States.[9] The disease is even more prevalent among blacks, and indeed U.S. blacks not only have a markedly higher age-adjusted death rate from prostatic cancer than the white male population of the United States, but also the highest rate among 24 countries having reasonably accurate mortality data.[7] These differences are thought to be due to environmental influences because in Japanese migrants to the United States the incidence of the disease seems to have risen, but not nearly to the level of that of native-born Americans.[9]

Sixteen papers were reviewed published from various regions of Saudi Arabia. Of these papers, there were two reports from King Faisal Specialist Hospital and Research Center (KFSH&RC) in Riyadh[8],[11] on the epidemiology of cancer in Saudi Arabia, encompassing 11,204 cases between 1975-1985[10] and 22,836 cases between 1976-1993,[11] with a slight overlap in the data. A total of 121 prostate cancer cases were seen in the first 10 years following the opening of this hospital.[10] Fifty-three (44%) patients were under 70 years of age, and 68 (56%) were over 70 years. Prostate cancer was the 20th in rank among all cancer seen in male patients.[10] In the second report, no importance whatsoever was given to prostate cancer, possibly because of its rarity.[11] It was not in the list of the top 10 most commonly encountered cancers in any of the age groups or regions presented.[11] Ranking adult (male and female) cancer cases by system revealed that there were 1192 (5.2%) cases of cancer of the urinary system, ranked in the 9th position, and 568 (2.5%) cases of cancer of the male reproductive system, ranked in the 12th position.[11]

There were three reports from Riyadh Armed Forces Hospital (RAFH).[12,13,14] They represented that prostate cancer patients constituted 2% of 2940 male cancer patients (n=59) as reported in 1992.[13] In 1995 the number of patients increased to a total of 256 cases.[14] The data was reported to represent cases encountered between 1983 and 1995. The representation of the data focused on the calculation of prostate cancer rates among the total number of 370,284 patients seen at RAFH during this period, coming to a very low figure of 0.06%. However, prostate cancer ranked second among all urological tumors and sixteenth among all tumors seen at RAFH.[14]

Another paper was presented from King Fahad National Guard Hospital in Riyadh in November 1996.[15] Seventy-four patients were seen over a 12-year-period, during which 16.617 adult males over the age of 45 years were admitted to the hospital. This represented 0.44% of all admissions. The mean age of presentation reported was 76.8 years. Twenty patients were younger than 65 years of age.

In a review paper on the problem of cancer in Saudi Arabia, it was generalized that “more than 70% of the cancer patients are admitted to hospitals in an advanced stage.”[16] This study also estimated the incidence of cancer to be around 800 new cases per million population per year.[16] It was shown in another study that the knowledge about cancer was disappointingly poor and the level of misperceptions significantly high in this region.[17]

There was one report from King Khalid University Hospital (KKUH) in Riyadh.[18] The report presented data on 1196 newly diagnosed cancer patients between September 1985 and August 1990.[18] There were 27 cases (relative frequency rate of 6.20%) with prostate cancer among 435 males, therefore it was placed among the top 10 most common cancers, ranking in the sixth position of all tumors. The age range was from 47 to 90 years, with a median age of 70 years.[18] In another from the Security Forces Hospital (SFH) in Riyadh reported the results of screening 300 patients with benign prostatic hypertrophy (BPH) for cancer during the period between July 1993 and July 1995.[19] Their methods of cancer detection included digital rectal examination (DRE), prostate-specific antigen (PSA), and the occasional transabdominal ultrasonographic examination of the prostate. No transrectal ultrasound (TRUS) was done for any of the patients. Perineal core needle biopsy was done for suspicious cases. Cancer was detected in 12 (4%) specimens. All patients were older than 70 years of age.

There were three reports on cancer from the Southern region of Saudi Arabia.[20,21,22] Tandon et al. reported on cancer cases seen at King Fahad Central Hospital (KFCH) in Gizan in

1995.[20]The study population was 2370 patients (1398 males and 972 females), seen over 11 years between 1982 and 1992. Among the patients were 55 cases of prostate cancer with a crude relative frequency of 3.93% and ranked in sixth position of all cancers in males. Willen and Petterson from King Fahad Hospital at Al-Baha published their experience with cancer cases in 1989.[22] The cases seen summed up 582 (336 males and 246 females) over seven years between 1981 and 1987. The total number of prostate cancer cases was 14, with a crude relative frequency of 4.2% and ranked ninth among all cancers in males. In 1991, Khan et al. reported 697 cases (425 males and 272 females) seen at Asir Central Hospital in Abha over a three-year period between 1987 and 1989. There were only ten cases of prostate cancer, with a crude relative frequency of 2.3% and ranked tenth among all cancer cases in males. In addition to those three reports on cancer in the Southern region, in a review of 253 patients presenting with BPH al Asir Central Hospital (ACH), Ghali et al. reported incidental adenocarcinoma of the prostate in 1.7% of 258 prostatectomy specimens obtained.[23] The overall cancer rate in this group of BPH patients seen over a seven-year period was 6.8% (n=17), but 13 patients (5.1%) were clinically suspected to have had cancer preoperatively.[23]

From the Eastern region, a study of 428 newly diagnosed patients (241 males and 187 females) revealed 18 cases of prostate cancer seen during the period between January 1981 and December 1985. Prostate cancer ranked 11th (4.2%) among cancers in all patients, and 5th (7.5%) among cancers of male patients.[24]

In one of the older studies from the Western region, seven cases of prostate cancer were seen among 1000 consecutive malignant neoplasms diagnosed in Saudis between 1975 and 1977.[25] The need for a national cancer registry was stressed in 1987.[26] The National Cancer Registry (NCR) was established in 1992 by the Ministry of Health (MOH) and recently produced its first report on all cancer patients in the Kingdom of Saudi Arabia from the beginning of January 1994.[4] In 1994, there were 137 cases of prostate cancer among Saudis. These cases accounted for 2.7% of all newly diagnosed cases. This cancer ranked sixth for males. The crude incidence rate is 2.1 per 100.000 for that year.[4]

In our study out of 535 cases 54 (10%) were malignant prostatic carcinomas. Our study did not worked over further staging of these carcinomas or their crude relative frequencies. The mean age of presentation calculated in our study was 66.81 (n=54, Median=67, mode=70, Std. Deviation=10.86).

The term Nodular hyperplasia, still referred to by the redundant term benign prostatic hyperplasia (all hyperplasias are benign), is an extremely common disorder in men over age 50.[9] It is characterized by the formation of large, fairly discrete nodules in the periurethral region of the prostate. When sufficiently large, the nodules compress and narrow the urethral canal to cause partial, or sometimes virtually complete, obstruction of the urethra. Although reports vary slightly, a careful examination of the prostate in an unselected series of autopsies disclosed nodular hyperplasia in approximately 20% of the men 40 years of age, a figure that increases to 70% by age 60 and to 90% by the eighth decade of life.[9] With this prevalence, it has been argued that nodular hyperplasia is not truly a disease but rather a normal aging process; this is a dilemma we can leave to the semanticists. Although clinically significant nodular hyperplasia is less prevalent, this is a problem of enormous magnitude. In 1990, more than 400,000 transurethral resections of the prostate were performed in United States. In men older than 65 years of age, this surgical procedure is second only to cataract extraction.[9]

No papers have been reported on benign prostatic conditions of prostate from Saudi Arabia to best of our knowledge. J.T Anim reported one large paper from Kuwait. [27] This paper analyzed 567 benign prostatic hyperplasia cases, and reported the mean age of presentation = 63 years (age range 33-98). They studied in detail the various morphological types of benign prostatic hyperplasia and inflammatory changes in prostate gland. There results were similar to ours. In our study 440 (82.2% of all prostate cases) of specimens were diagnosed as having adenomuscular hyperplasia, with mean age of presentation 64.38 (n=440, median=65, mode=60, Std. Deviation=10.97). Among them 396 (90%) cases were showing glandulostromal pattern and 44 (10%)were showing mainly stromal pattern. The mean age of presentation for these two patterns separately was slightly lower for the later group i.e. glandulostromal = 65 and for stromal 52 years.

No study representing rates of inflammatory lesions in prostate glands have been published from Saudi Arabia. In our study there were 133 (24.9%) cases having chronic prostatitis, 17 (3.1%) cases having acute prostatitis and 5 (0.9%) cases having granulomatous prostatitis. 4 cases of these granulomatous prostatitis were showed narcotizing

granulomatous lesion and were confirmed as tuberculous. The mean age of presentation for acute prostatitis was 60.94 (n=17, median=60, mode=60, Std. Deviation=8.96); for chronic prostatitis was 65.1 (n=132, median=65, mode=60, Std. Deviation=12.04) and for granulomatous prostatitis was 67 (n=5, median=67, mode=66).

CONCLUSIONS

In conclusion, from analysis of our study and review of literature we are under the impression that the rate of prostate cancer in Saudi Arabia is low at this time, but due to lack of central cancer registry and wide scale studies in the Kingdom, the importance of screening protocols and increasing education and awareness can not be downgraded. Therefore, we recommend further large-scale studies and continuous monitoring of the newly diagnosed cases, measuring of the morbidity caused by this disease and keeping an eye on its mortality rates. If there are any changes in the current low numbers, then every effort should be made for the appropriate measures to be taken towards possible prevention, by avoiding some of the risk factors. Recognition of unusually high morbidity and mortality rates would justify the screening for early detection of this disease and serious attempts to seek effective and curative treatment at the early stages.

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