

Prostatitis and Benign Prostatic Hyperplasia among Monks/Friars Aged 45-70 Presented at Unth Enugu state, Nigeria Between 2008-2013

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Abstract

The present work was undertaken to study the prevalence of prostatitis and Benign prostatic Hyperplasia (BPH) among male nuns aged 45-70 years presented at the University of Nigeria Teaching Hospital (UNTH) Ituku/Ozalla, Enugu between 2008-2013. A total of thirty (30) paraffin processed Benign Prostatic Hyperplasia and prostatitis tissue biopsies were used. These samples were obtained by medical experts from patients who had been diagnosed of BPH and prostatitis between the years 2008-2013. Two (2) thin sections (5 μ) were obtained from each paraffin block of BPH and prostatitis and stained with Haematoxylin and Eosin (H&E). The results obtained showed that they were higher prevalence of BPH (62.34%) to prostatitis (37.80%) in UNTH from the year 2008-2013. It was also observed that the occurrence of these diseases is mostly dependent on the age of individual. The increased prevalence rate of 62.24% was seen mostly amongst monks which show significant result ($p < 0.05$) between the ages 51-70 years while the incidence rate of prostatitis in UNTH under the period of study mostly among the monks studied is 37.80% seen among the monks/friar between 45-50 years. Also, the various morphological alterations seen in the examined diseased prostate tissues state included the presence of inflammatory cells, prostatic acini, corpora amalycae, prostatic region, hyperplastic cyst and fibromuscular region. In conclusion, the occurrence of BPH and prostatitis depend on the age of the individual.

Keywords: Benign prostatic hyperplasia; Prostatitis

Introduction

Prostatic diseases cause enormous morbidity worldwide. Currently, adenocarcinoma of the prostate is the most common form of cancer in men in USA, with a predicted cost of US \$8.8 billion for continuing care of these patients by 2020 [1]. Moreover, Benign Prostatic Hyperplasia (BPH) affects an estimated 70% of men aged 61-70 years and 90% of those aged 81-90. By 2025, BPH is likely to affect 20% of the total male population in USA [2]. Improved understanding of these diseases could have a significant impact on male health. Cancer of the prostate and BPH are chronic diseases with long period of development and progression. Interestingly, a self-reported history of prostatitis is associated with prostate cancer and BPH [3]. The role of inflammation in prostatic diseases is currently yet to be fully elucidated, although there is emerging evidence that prostatic inflammation may contribute to prostate growth in terms of hyperplastic or neoplastic changes [4]. It was demonstrated that among a managed care population, 1 in 10 men ages 70 and above were diagnosed with prostatitis [5]. It was found that prostatitis prevalence in a Finnish population increases with age [6]. However, The Olmsted County Study found no difference in age when comparing men by prostatitis status in those ages 66 years and older [7].

Histological evidence of inflammation has been reported in approximately 40% of cases of BPH and is associated with a significantly increased risk of acute urinary retention [4]. About 20% of all human cancers are caused by chronic inflammation, perhaps including prostate cancer [5]. A better understanding the relationship between prostatic inflammation (prostatitis) and BPH may provide an opportunity to influence the diagnosis or treatment of the diseases [5]. The large number of men with the symptoms of these disorders, the easy access to diagnostic tests, and availability of drug therapy make it appropriate for primary care providers and medical laboratory scientists to participate in the management of men with these disorders. To do so requires an appreciation for what is known regarding the epidemiology and etiology of these diseases [6]. Prostatitis and Benign Prostatic Hyperplasia (BPH) are associated with several urinary dysfunctions and symptoms as the prostate gland surrounds the neck of the urethra. Several changes within

the gland then directly affect the urinary function. As the prostate enlarges, it squeezes and blocks the urethra, making it hard to empty the ladder completely. Because the vas deferens deposits seminar fluid into the prostatic urethra and secretions from the prostate gland itself are included in semen content. The above disease conditions may also be involved in sexual functions and performance such as painful orgasms, pain in the testicles or penis, difficulty achieving erection, and painful ejaculation [2].

It is generally believed that most prostatic problems especially Benign Prostatic Hyperplasia (BPH) and Prostatitis are diseases that are age dependent. This work is targeted to determine where truly age is a determining factor for occurrence of BPH and prostatitis. This study was designed to: Investigate the incidence of prostatitis and BPH among male nuns aged 45-70 years old presented at the University of Nigeria Teaching Hospita, Ituku/Ozalla Enugu from the year 2008-2013. Objectives are: To determine whether age has any effect on the occurrence of BPH and prostatitis, to highlight the morphological features of BPH and prostatitis in the above patients presented at UNTH.

Materials and Method

This study was carried out in University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu state, Nigeria. The materials used include: Stainless steel cage, digital weighing balance, dissecting

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materials, cut up board, surgical blades, knives, cotton wool, tissue gauze, glass wares (pyrex), sponge, foam, cover slip, conical flask, measuring cylinders, universal container, 5 ml syringe, 2 ml syringe, capillary tubes, lithium heparin bottles, tissue cassette, tissue mould, haemacule, haematocrit centrifuge, haematocrit reader, automatic tissue processor, (Hestion-E500 germany), Rotary microtome (Hestion ERM 4000 Germany), water bath (Gallenkamp), Hot plate, staining racks, forceps, binocular microscope (Olympus, England), GFI shaker (No 3017MBH, Germany), hot air oven, blending machine, lead pencil. Reagents includes: Haematoxylin, Eosin, Xylene, Dibutylphthalate polystyrene xylene (DPX). A total of thirty (30) paraffin processed BPH and prostatitis tissue biopsies were used. These samples were obtained from patients who had BPH and prostatitis. These cases were previously reported in the Department of Histopathology, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu between the year 2008-2013. Thin sections (5 μ) were obtained from each paraffin block and stained with Heamatoxylin and Eosin (H&E) staining procedure as described by Mehik et al. [6]. Protocols for Heamtoxylin and Eosin: Deparaffinize tissue slides in xylene, Hydrate in decreasing grades of alcohol (100%, 95%, 90%, 70%, rinse in water, stain in cole's hematoxylin 3-5 min rinse in distilled water, differentiate in 1% HCL in 70% alcohol, briefly (5 s), rinse in distilled water, blue in Scott's water for 5 min, counter stain with 1% eosin solution for 2 min rinse in distilled water, dehydrate in increasing grades of alcohol (70%, 90%, 95%, 100%), rinse in water, clear in xylene, mount with synthetic medium, observed or examine using binocular microscope with an in-built system. The sections were then photomicrographed using a digital microscope camera attached to

an Olympus trinocular microscope. Data obtained were analyzed using statistical package for social Science (SPSS) version 20. The frequency each case analyzed was presented in percentages. The data were also presented using tables and charts (Figure 1).

Results

From the above table, in 2008, among the 98 samples that were used for the investigation, 5 patients (5.10%) had prostatitis while 9 patients (9.18%) had BPH making it 14 patients with (14.28%) of total. In 2009, 7 patients (7.14%) had prostatitis while 11 had BPH (11.22%) making it patients with (18.36%) of total. In 2010, 6 patients (6.12%) had prostatitis while 6 patients (6.12%) had BPH making it 12 patients with (12.24%) of total. In 2011, 8 patients (8.16%) had prostatitis while 12 patients (12.24%) had BPH making it 20 patients (20.40%) of total. In 2012, 5 patients (5.10%) had prostatitis while 14 patients (14.28%) had BPH making it 19 patients with (19.38%) of total. In 2013, 7 patients (7.14%) had prostatitis while 11 patients (11.22%) had BPH making it 18 patients with (18.36%) of total (Tables 1-3).

Source: UNTH morbid department register 2008-2013

From the above table, 34 patients (34.69%) and 2 patients (3.27%) who had prostatitis and BPH respectively were between the ages bracket of 45-50. Also, 3 patients (3.06%) and 9 patients (9.18%) who

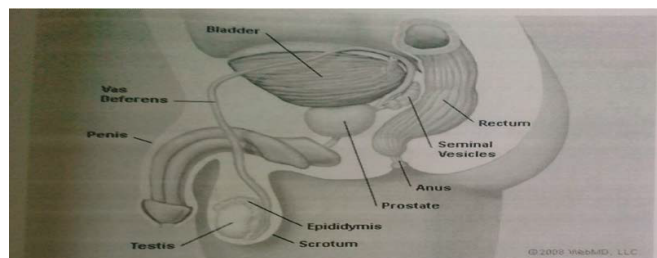


Figure 1: Picture of the anatomy of the prostate.

Diagnosis	Frequency (%)
Prostatitis	37 (37.80%)
Benign Prostatic Hyperplasia (BPH)	61 (62.24%)
Total	98 (100%)

Table 1: Showing the prevalence of benign prostatic hyperplasia (BPH) and prostatitis among monks presented at Unth from 2008-2013.

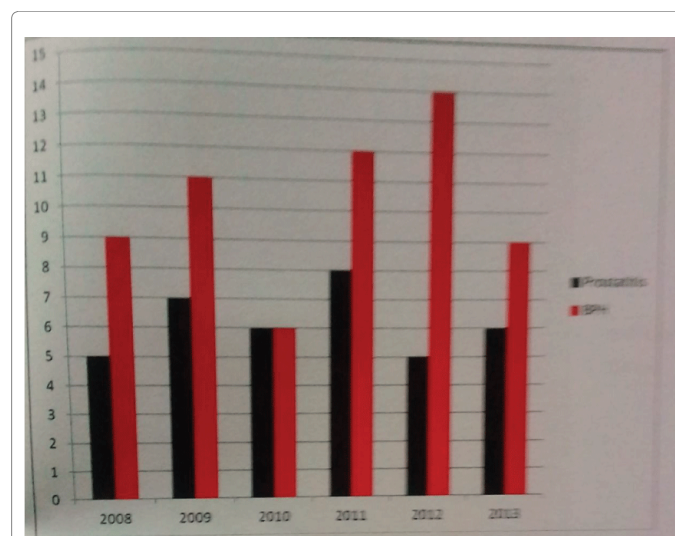


Figure 2: A graph showing the prevalence of benign prostatic hyperplasia (BPH) and prostatitis among male monks presented at Unth from year 2008 to 2013.

Diagnosis	2008	2009	2010	2011	2012	2013	Total
Prostatitis	5 (5.10%)	7 (7.14%)	6 (6.122%)	8 (8.16%)	5 (5.10%)	6 (6.12%)	37 (37.80%)
BPH	9 (9.18%)	11 (11.22%)	6 (6.12%)	12 (12.24%)	14 (14.28%)	9 (9.18%)	61 (62.24%)
Total	14 (14.28%)	18 (18.36%)	12 (12.24%)	20 (20.40%)	19 (19.38%)	15 (15.30%)	98 (100%)

*Source: UNTH morbid department registered 2008-2013

Table 2: Prevalence of benign prostatic hyperplasia (BPH) and prostatitis among monks presented at Unth from year 2008-2013.

Diagnosis/ages	45-50	51-55	56-60	61-65	66-70	Total
Prostatitis	34 (34.69%)	3 (3.06%)	Nil (0%)	Nil (0%)	Nil (0%)	37 (37.80%)
BPH	2 (3.27%)	9 (9.18%)	9 (9.18%)	12 (12.25%)	29 (29.59%)	61 (62.24%)
Total	36 (36.73%)	12 (12.25%)	9 (9.18%)	12 (12.24%)	29 (29.59%)	98 (100%)

*Source: UNTH morbid department registered 2008-2013

Table 3: Age group distribution of monks presented and diagnosed with benign prostatic hyperplasia (BPH) and prostatitis in UNTH from 2008-2013.

had prostatitis and BPH respectively were between ages bracket of 51-55. In addition, no patient and 9 patients (9.18%) who had prostatitis and BPH respectively were between ages 56-60. There was no patient and 12 patients (12.25%) who had prostatitis and BPH were between ages bracket 61-65. Also, no patients (0%) and 29 (29.59%) who had prostatitis and BPH respectively were between age bracket 65-70. The result from this study reveals that prostatitis and BPH is significant ($p < 0.05$) amongst monks. The study also revealed a slight increase of BPH and prostatitis amongst monks/friar in comparison with other male visiting UNTH (Figures 2-6).

Discussion

The occurrence of BPH and prostatitis mostly depends on the age of individual as it was observed that the incidence rate of BPH

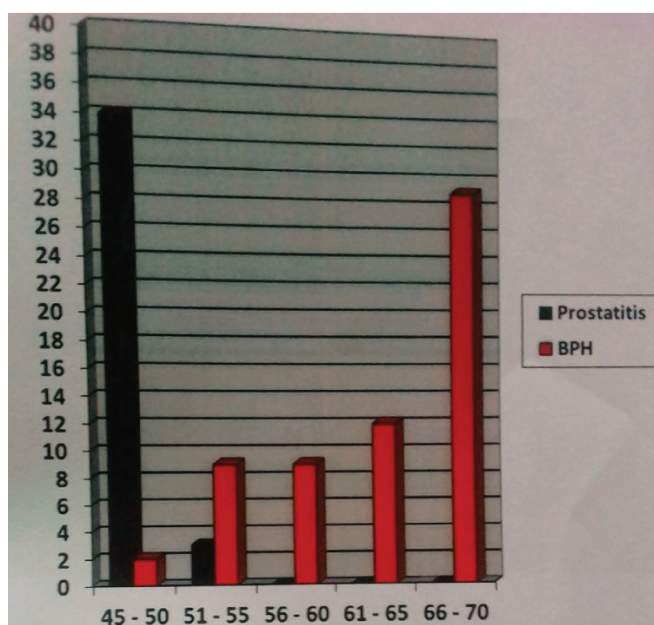


Figure 3: A graph showing the age group distribution of male nuns presented and diagnosed with benign prostatic hyperplasia (BPH) and prostatitis in Unth from year 2008-2013.

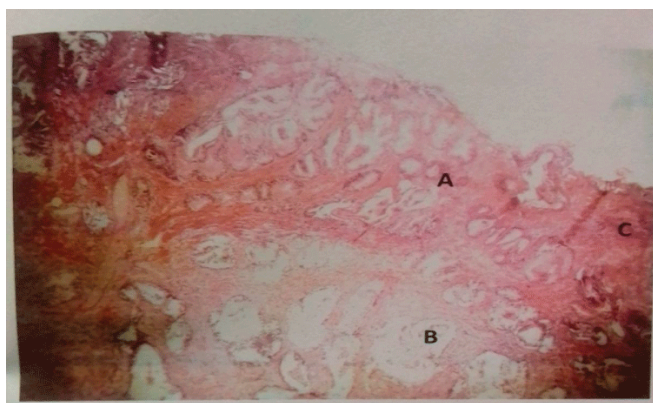


Figure 4: Photomicrograph of BPH showing actively dividing hyperplastic cyst (A), prostatic acini (B) and fibro muscular region (C) is increased.
Stain: H&E
Magnification: 100x

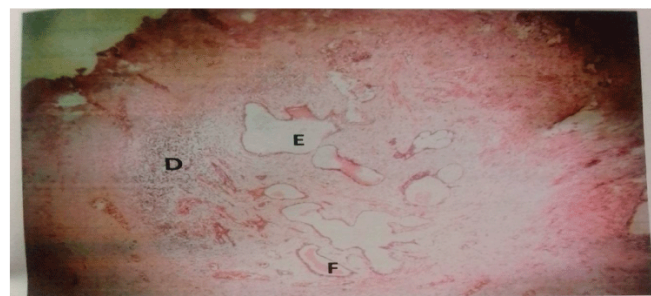


Figure 5: Photomicrograph of BPH showing numerous inflammatory cells (D) on the entire stroma, prostatic acini (E) are undefined and corpora amylacea (F).
Stain: H&E
Magnification: 400x

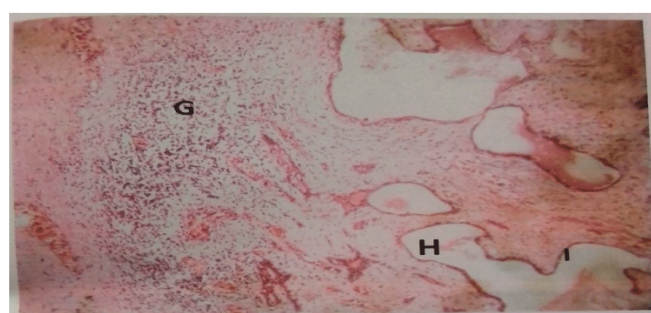


Figure 6: Photomicrograph of a mixture of prostatitis and BPH. (G) represents the prostatic region, (H) is the BPH region and (I) is the corpora amylacea.
Stain: H&E
Magnification: 400x

increases mostly between the ages of 51-70 years which agrees with that of Clemens et al. [5] which noted that BPH increases from 46 years. It also noted that the incident rate of BPH increased from 51 years till death. Also, the incidence of prostatitis mostly among monks study was between 45-50 years which agrees with that of Clemens et al. [5], which noted that prostatitis is common among monks below 50 years of age. Furthermore, Various morphological alterations discovered in the tissue slides includes; the presence of undefined prostatic acini (Scant cytoplasm and dilated lumens), corpora amylacea (small concretions within the glandular lumina which represent laminated concretions of prostatic secretions), numerous inflammatory cells (mostly lymphocyte and macrophages), distorted and increased fibromuscular stroma/region (which account for about half of the volume of the prostate) and actively dividing hyperplasia cyst (accumulation of mucus in the lumen) [8,9].

Conclusion

In conclusion, the occurrence of BPH and prostatitis mostly depends on the age of individual as it was observed that the incidence rate of BPH increases mostly between the ages of 51-70 years. Also, the incidence of prostatitis mostly among monks study was between 45-50 years. Other factors apart from age, that could lead to these diseases include: race, family history of bladder cancer (genetic/hereditary), alcohol consumption, use of some Non-steroidal Anti-inflammatory Drugs (NSAIDs), Urinary Tract Infection (UTIs), poor personal and environmental hygiene, possibly celibacy, etc.

Recommendation

In this study of BPH and Prostatitis, it is recommended that: Active surveillance remains the most effective precautions to be taken to avoid having any abnormal growth in prostate gland, annual rectal examination of males between 40-65 years of age should be carried out since surgical cure could be done before the cells growth leads to metastatic stage, Dietary control against prostatic diseases should be recommended for males once they reach the age of prostate cells gland growth.

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