International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Original Research Article

Haematuria in Benign, Prostatic Hyperplasia and Prostatic Carcinoma

Mr. Bernard N. Kafor[1], Dr. Godfrey I. Nnadi[2], Prof. Wilson I. Onuigbo[3]

[1]Medical Laboratory Scientist, Department of Pathology, Federal Medical Centre,Owerri.
[2]Consultant Pathologist, Department of Pathology Federal Medical centre, Owerri.
[3]Director, Medical Foundation and Clinic, Enugu.

Corresponding Author: Mr. Bernard N. Kafor

ABSTRACT

Introduction: Haematuria is a common clinical feature in prostatic diseases. Elucidation on its pattern and significance in benign prostatic hyperplasia (BPH) and prostatic cancer (Pca) is important in the search for better diagnosis and treatment/management decision.
Objective: To evaluate the pattern and significance of haematuria in benign prostatic hyperplasia and prostatic carcinoma.
Methodology: Retrospective study of 2,372 prostatic diseases, of which their samples were received in 10% formalin solution, from deferent parts of South Eastern Nigeria. The samples were processed using basic histological techniques and stained with haematoxylin and eosin. Relevant data such as age, diagnosis and haematuria status, were extracted from the request form and subjected to statistical analysis using Statistical Package for Social Science versin16.
Result: A total of 2,317 cases of prostatic diseases were analyzed: 70.60% showed benign prostatic hyperplasia; 29.00% for prostatic carcinoma and 0.4% for others. The mean age for benign prostatic hyperplasia and prostatic carcinoma patients were respectively 62.03 and 66.93 years. The incidence rate of haematuria in prostatic diseases was 12.04%:11.00% in prostatic hyperplasia and 14.75% in carcinoma, with respective age of occurrence of 65.04 and 65.68 years. Statistical test shows, significant difference between the incidence of BPH and that of Pca in prostatic diseases (P value <0.05). Difference in haematuria between the two conditions is not significant; as regards incidence; age of occurrence; peak age of occurrence and rates (Value >0.05).
Conclusion: This study demonstrated that haematuria in both Pca and BPH were the same with respect to age and rate. Furthermore, it confirms the predominance of prostatic hyperplasia in prostatic diseases. .
Key words: Haematuria, Benign Prostatic Hyperplasia, Prostatic Carcinoma, Exocrine.

INTRODUCTION

Prostate gland is an accessory male reproductive exocrine organ associated with three major disorders viz benign prostatic hyperplasia (BPH), prostatic carcinoma (Pca) and prostatitis. [1-3] The diseases reportedly cause considerable level of distress, morbidity and mortality to the victims, [3-5,6] who are mostly elderly men. [7,8,2]

Unlike BPH, of which its incidence rate is approximately same across the globe, Pca exhibits racial and geographical variation; -African Americans having the highest incidence, followed by Caucasians before the Asians. [1,9,10] BPH is becoming more prevalent, with up to 57% - 70.2% men harboring the condition. [2,11] Studies has shown that prostate cancer is still a global health problem: Second most frequent cancer and sixth leading cause of

death due to cancer among men, with estimated record of 1.1 million cases and 307000 deaths in 2012. [12] Some hospital based studies has shown that prostate cancer is not uncommon in Nigeria. [13,14]

Benign prostatic hyperplasia and prostatic carcinoma share common clinical signs and symptoms, [15,16,5] and one of the major clinical manifestations, in both diseases is haematuria. [13,17] Haematuria which denotes significant presence of blood in urine could be macroscopic or microscopic and may be a reflection of an underlying disease condition, most often originating from any point along the urinogenital tract. [18,19]

Significant haematuria emanating from prostatic conditions could be as a result of disruption of the neovascularization impacted uroepithelium, [20,21] or ulceration due to invading prostate cancer. [22,23] Therefore, this study is aimed at evaluating the pattern of haematuria in adult males suffering from any of the diseases with view to elucidate the significance of this presentation in the search for healing /management strategies.

MATERIALS AND METHODS

This is a retrospective study of 2,372 prostatic disease cases reviewed at the Pathology Department, Medical Foundation & Clinic, from 1970 – 2010. The materials consist of surgical specimens fixed with 10% formalin solution and received mainly from various parts of South Eastern Nigeria. These samples were processed by conventional histological techniques and stained with H&E. Sequel to the approval of the ethical unit of the institution, cases without specific diagnosis were excluded and the remaining 2,317 cases were analyzed. Relevant data such as age of patients, presence or absence of haematuria, and histological diagnosis were obtained from histology request forms.

The data obtained was analyzed using the Statistical Package for Social Science; version 16.0 (SPSS16.0).The student's t test was used for continuous variables, while chi-square test was applied for the analysis of discontinuous variables. A probability value (Pv) less than or equal to 0.05 was considered Statistically significant.

RESULTS

The study involves 2317 cases of prostatic diseases, of which 1636 (70.60%) showed Benign prostatic hyperplasia and 671 (29.00%) demonstrated prostate carcinoma. The rest of the prostatic disease cases (tagged others) - 10 (0.40%) revealed inflammation and prostatic infestation. There is significant difference between the number of patients diagnosed with BPH and Pca (X^2=2597.34) (Pv<0.05). Table1.

Of the 2317 prostatic disease cases, 279 (12.04%) were presented with haematuria. The mean age of patients having BPH and PCA are 62.03 and 66.93 years respectively. The incidence rate of haematuria in BPH cases was 11.00% and the mean age at presentation was 65.04 years. The peak age of incidence was in age group 60-69 years. In the same vein, the incidence rate of haematuria in prostatic carcinoma was 14.75%. The mean age of this category of patients was 65.68 years, while their peak age of incidence was also 60-69 years. The t-test carried out to ascertain the difference in mean age of patients with BPH associated with haematuria and that of Pca associated with haematuria resulted to (t =0.3541) (P.0.05).Also the chi-square test carried out on the haematuric conditions of the two diseases yielded (P value>0.05).Table 2. The P value on the rate of haematuria in the respective diseases yielded (P value > 0.05). Table 3 and 4.

Table1: Analysis of Prostate Specimen

Diagnosis	No. patients	Percentage
BPH	1636	70.60
Prostate cancer	671	29.00
Others	10	0.40
Total	2317	100

X^2 =2597, Pv <0.05

Table 2: Simplistic Comparative Presentation Of Haematuria In BPH And Pca.

	BPH	PCA
Haematuria	11.0%	14.74%
Peak age of incidence	60-69	60-69
Mean age	65.04	65.68

X^2 =0.71, Pvalue > 0.05
T=0.3541, Pvalue >0.05

Table 3: Distribution by age of patients having BPH associated with haematuria.

Age group	BPH	Haematuria
40-49	50	4
50-59	338	37
60-69	702	76
70-79	390	51
80-89	144	10
90-99	10	2
Total	1636	180

X^2 =4.3710. Pv >0.05

Table IV: Distribution by age of patients having prostate cancer associated with haematuria.

Age group	Prostate cancer	Haematuria
40-49	19	5
50-59	89	22
60-69	297	36
70-79	205	28
80-89	56	8
90-99	5	
Total	671	99

X^2 =4.3710, P value >0.05

DISCUSSION

The most common pathological processes (BPH, PCA and prostatitis), found to affect the prostate with sufficient frequencies, are occasionally accompanied by haematuria. [7] Of the 2317, patients' reports, analyzed in this present study, 1636 (70.60%) showed benign prostatic hyperplasia. This compares well with 82.2% reported by Anjorin et al., [24] - indicating predominance of BPH in prostatic diseases. The number of patients diagnosed with prostatic carcinoma was 671 (29.00%). This result is in concordance with Mittal et al., in which there is preponderance of BPH, with only 7.02% representing Pca- an indication of the latter's lower occurrence; though higher in the present study, probably due to geographical variation. [25,26] The chi-square test carried out on table 1, yielded Pv < 0.05 showing that there is significant diference in incidence, between BPH and Pca in prostatic diseases.12.04% incidence of haematuria in prostate diseases, compares well with 11.4% reported by Odubanjo et al. [27] This is an evidence, that haematuria is not uncommon in prostatic diseases as in other previous studies in Nigeria. [13,14]

The respective mean age of patients diagnosed with BPH and Pca are 62.03 and 66.93; this is consistent with the report of Mohammed et al., [28] suggesting earlier onset of BPH in most individuals.

The peak age of incidence, (60-69 years) was the same for all categories of the study. This is in conformity with the works of Anjorin et al. and Ifere et al. [29,24] This suggests that benign prostatic hyperplasia and prostatic carcinoma, may be more common in our environment within this age group. In the same vein, one may adduce that prostatic haematuria is rife within this age range and also this confirms prostatic diseases as being more common among the elderly.

Next is haematuria, which has an incidence rate of 11.0%, and mean age of occurrence of 65.04 years in BPH. When compared with that in Pca, the former has lower occurrence, though statistically insignificant (P value >0.05).

The slight difference in incidence rate of haematuria in BPH may be due to under diagnosis or failure in documentation of microscopic haematuria. Furthermore, haematuria in benign prostatic hyperplasia arise mainly from neovascularization accompanying the tumour; [20,21] while prostatic carcinoma haematuria, may result from neovascularization/cancer inversion or both. [22,20] Gross haematuria secondary to prostatic bleeding has been associated with advanced or metastatic prostate cancer; [23] reportedly common among men of African descent. [26] It will be research-worthy to compare molecular profile of patients positive for prostate cancer with metastasis; with that of patients diagnosed of prostate cancer with haematuria to establish possibility common genes.

The mean age of haematuria occurrence in both BPH and Pca was 65.04 years and 65.68 years. The difference is not statistically significant using student's T-test (Pv >0.05). This result shows that haematuria is common in the two conditions with the age of onset.

Casual observation of (table 3 and 4) shows the rate of haematuria in BPH to be increasing with age while that of Pca is inconsistent. The highest incidence of haematuria in BPH is the age group 90-99, followed by 70-79 years. This might be a

clear indication that haematuria in BPH arise from a single mechanism-neovascularization which gets worse with age/time. Interestingly, even though there is possibility of haematuria increasing with age, this is not statistically significant in this study (P value>0.05). The inconsistency in the rate of haematuria in Pca may be due to origination of its haematuria from more than one mechanism-neovascularization, and inversion of cancer. [22,20] As in the case of BPH, there is no significant change in the rate haematuria with age in Pca. This may imply that, haematuria does neither get better or worse with age; rather increased morbidity as reported by Rastinhad et al. [20]

CONCLUSION

Haematuria is a common clinical finding in both BPH and PCA. Benign prostate hyperplasia, though predominant in prostatic diseases, with earlier onset does not have significant difference in the incidence of haematuria, when compared with Pca. The two disease conditions, together with their respective incidence of haematuria are more common among the elderly; and share the same peak age of incidence of haematuria, mean age of occurrence as well non –time/age independent rate. Therefore, it is difficult to pinpoint BPH or Pca as the underlying cause of haematuria in a prostatic disease.

ACKNOWLEDGEMENT

Our sincere gratitude goes to the staff and Management of Medical Foundation and Clinic for providing material resources and support base for this work.

REFERENCES

1. Landis SH.Murray T.Bolden S. Cancer Statistics.CA Cancer Journal for Clinicians. 1999;49:8-31.
2. Suzuki K. Epidemiology of prostate cancer and benign prostatic hyperplasia .Journal of Medical Association Japan.2009;52: 478-483.
3. Berry SJ. Coffey DS.Walsh PC.Ewing LL. The development of human benign prostatic disease with age. Journal of Urology. 1984; 132:474-479.
4. Ramsey EW, Benign prostatic hyperplasia: A review. Cancer Journal of Urology.2000; 7:1135.
5. Heidenreich A.Aus G.Bolla M.et al. European Association of Urology guidelines on prostate cancer .European Urology.2008; 53:68-80.
6. Ahmedin J. Rebecca S. Elizabeth W. Youngpin H, Jiagnan X. Talor M. Michael J. Cancer Statistics.CA Cancer Journal for Clinicians.2008; 58:71-96.
7. Contrac RC.Kumar V. Robbins SC.Robbins Pathologic Basis of Diseases.5th ed. Philadelphia: WB Sounders 1994.
8. Rosai J. Acherman's Surgical Pathology. 10th ed vol1. Edinburgh: Mosby Elsevier,2011,pp.1288-1309.
9. Ferlay J. Shin HR. Bray F. Forman D. Matters C. Parkin DM. Cancer incidence and mortality worldwide: GLOBOCAN 2008.Lyon France: International Agency for Research; 2010.
10. Bock-Oruma AA,Dienye PO, Afolabi IO. Prevalence of lower urinary tract symptoms suggestive of benign prostatic hyperplasia in primary care.South African Family Practice.2013; 55(5):467-472.
11. Bock-Oruma AA. Dienye PO. Afolabi IO. Prevalence of lower urinary tract symptoms suggestive of benign prostatic hyperplasia in primary care. South African Family Practice.2013;55(5):467-472.
12. Sadeghi-Gandomani HR. Yousefi MS. Rahimi S. Yousefi SM.et al. The incidence, risk factors, and knowledge about the cancer out the world and Iran. World Cancer Research Journal.2017;4(4)1-8.
13. Onuigbo WB. Carcinoma of prostate: Indigenous patterns. Journal of National Medical Association.1984;76:373-375.
14. Ekwere PD. Egbe SN. The changing pattern of prostate cancer in Nigeria: Current status in the South Eastern States. Journal of National Medical Association.2002;94:619-627.
15. Aghaji AE. Odoemena CA. Prostatic cancer after prostec to my for benign prostatic hyperplasia in Nigeria. East African Medical journal. 2000; 77: 635-639.
16. Ezeanyika LU. Ejike CE. Obidora SO. Prostate disorders in an apparently normal population: Prevalence.Biochemistry.2006; 18:127-132.
17. Oranusi UK. Ugezu AI. Nwafor AM. Diagnosis of prostate cancer with biopsy:

Should all cases be biopsied before treatment. Journal of Clinical Practice.2012; 15:48-50.
18. Grossfeld GD. Wolf S. Litwin MS. et al. Asymptomatic microscopic hematuria in adults: Summary of the AUA Best Practice Policy Recommendation. American Family Physician.2001; 63(6):1145-1155.
19. Vasder N. Kumar A. Veeratterapillay R. et al. Haematuria secondary to benign prostatic hyperplasia: Retrospective analysis of 166 men identified in a single one stop haematuria clinic. Current Urology. 2012; 6:146-149.
20. Rastinhad AR. Ost MC. Vander Brink BA. Siegel DN. Kavouse LR. Persistent prostatic haematuria. Nature Clinical Practice Urology. 2008; 5(3):1-6.
21. Omabe M. Chinwe E. Onyeanusi JC. et al. Journal of Medicine and Medical Sciece.2011;2:1301-1312.
22. Onuigbo WB. Joseph Coats (1846-99) of Glasgow and the theory of cancer metastasis. Sctland Medical Journal.1970; 15(8):281-284.
23. Sing R. Singal RK. What is the significant haematuria for primary care physician? Cancer Journal of Urology. 2012; 4(1):1-8.
24. Anjorin AS. Adeniji K.Ogunsulire IA. Histopathological study of prostate lesions in Ilorin, Nigeria. The Central African Journal of Medicine.1998;44(3):72-75.
25. Mittal BV. Amin MB. Kinare SG. Spectrum of his to pathological lesion in 185 consecutive prostate specimens. Journal of Postgraduate Medicine.1989; 35:157-161.
26. Odedina FT. Akinremi T O. Chinogwudo F. et al. Prostate cancer disparities in Black men of African descent: A comparative literature review of prostate cancer burden among Black men the United States, Caribbean, United Kingdom, and West Africa. Infectious Agents and Cancer.2009; 4(1):1-8
27. Odubanjo MO. Banjo AA. Ayoola S. et al. The clinic pathologic pattern of prostatic carcinoma in Lagos, Nigeria. North American Journal of Medicine and Science.2013; 6(2):71-75.
28. Alhasan SU. Aji SA. Mohammmed AS. Malami S. Transurethral resection of the prostate in Northern Nigeria, problems and prospects. BMC Urology. 2008; 8: 18.
29. Ifere GO. Adebe F. Ananaba GA. Emergent trends in the reported incidence of prostate cancer in Nigeria. Clinical Epidemiology. 2012; 4:19-32

How to cite this article: Kafor BN, Nnadi GI, Onuigbo WI. Haematuria in benign, prostatic hyperplasia and prostatic carcinoma. Int J Health Sci Res. 2019; 9(10):152-156.

******