



RESEARCH ARTICLE

THE PREVALENCE OF HYPERTENSION IN PATIENTS WITH CHRONIC KIDNEY DISEASE IN CHRIST THE KING HOSPITAL ABA, ABIA STATE NIGERIA

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ARTICLE INFO

Article History:

Received 24th April, 2019

Received in revised form

20th May, 2019

Accepted 15th June, 2019

Published online 30th July, 2019

Keywords:

Chronic Kidney Disease,
Hypertension, Chronic
glomerulonephritis, Herbal Nephropathy,
Obstructive uropathy

ABSTRACT

Hypertension (HTN) is very common in patients with chronic kidney disease and its prevalence increases as renal failure progresses. Chronic kidney disease (CKD) is a global public health problem, with a greater burden and prohibitive cost of care. This study determined the prevalence of hypertension in chronic kidney disease and identified its associated risk factors in patients attending Christ the King Specialist Hospital Aba, Abia State Nigeria. A total of 207 patients were examined in the area. Patients' records over 24 months period were recorded for the following information; Socio-demographic data, mode of presentation, etiology of CKD, blood pressure, Urea and creatinine tests. The common etiologies of CKD in patients were hypertension 70 (33.8%), Chronic glomerulonephritis (CGN) 68 (32.9%), hypertension 68 (32.9%), diabetes mellitus 50 (24.1%), obstructive uropathy 30 (14.4%), herbal nephropathy 27 (13.0%), HIV 5 (7.4%) and others 39 (18.8). High creatinine levels were found in 89 (43.0%) patients their elevated systolic blood pressure (ESBP) of 37 (41.6%) and elevated diastolic blood pressure (EDBP) of 33 (37.1%). High urea levels were found in 77 (37.2%) patients with their ESBP of 34 (44.2%) and EDBP of 28 (36.4%). CKD patients with high creatinine levels and high urea levels without family history of hypertension were 53 (59.5%) and 47 (61.0%) respectively while 16 (18.0%) and 13 (16.9%) do not know of any family history of hypertension. CKD patient's blood pressure should be adequately controlled, early diagnosis and referral of those patients to a specialized Nephrology Center will reduce the burden of renal disease in the study area.

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INTRODUCTION

Chronic kidney disease (CKD) has become a public health problem due to its increasing prevalence globally and associated high morbidity and mortality. Renal failure represents a growing but mostly undocumented cause of premature mortality in low-income and middle-income countries (Dare, et al., 2017). The burden of CKD is more felt in developing countries like Nigeria where there is no well established health insurance scheme to meet the huge financial demands the disease places on its sufferers and their families (Adejumo, et al., 2016). Hypertension is both a cause and a consequence of chronic kidney disease, but the prevalence of chronic kidney disease throughout the diagnostic spectrum of blood pressure has not been established (Deidra et al., 2010). World Health Organization (WHO) statistics reveal that the death rate from intrinsic kidney and urinary tract disease was one million in the year 2002, ranking twelfth on the list of major causes of death.

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The prevalence of chronic kidney disease (CKD) in the community was grossly underestimated in the past. The prevalence of impaired kidney function was estimated to range between 10% and 20% of the adult population in most countries worldwide (Afolabi, et al., 2009). An estimated 26 million adults (13%) in the United States had CKD in 1999–2004, representing a 3% increase from the previous 10 years. Also the prevalence of CKD in the United States in 1999-2004 is higher than it was in 1988-1994 This increase is partly explained by the increasing prevalence of diabetes mellitus and hypertension and raises concerns about future increased incidence of kidney failure and other complications of CKD (Coresh et al., 2007). Lower BP is generally well known to be associated with decreased risk of kidney disease progression, cardiovascular events, and death. Despite the recognized importance of controlling BP, control in the general population has been shown previously to be fairly poor, ranging from 29% to 60%, depending on age, sex, and race (Laurac, et al., 2009). CKD is now recognized as an important risk factor for other adverse outcomes such as acute kidney injury, cardiovascular disease, and premature death (Coresh, 2017 and Murphy, et al., 2016).

MATERIAL AND METHODS

This study was carried out in Christ King Specialist Hospital Aba, Abia State, Nigeria. CKD patients who presented to the center over 24 months period from May 2017 to June 2019 were recruited for the study. Patients below the age of 20 years were excluded. The case records of the patients were retrieved, and the following information extracted: socioeconomic status, demographic data, clinical characteristics at presentation and mode of referral to the nephrologist. Ethical approval was gotten from the hospital's ethical committee on research.

The resting blood pressure of each subject was measured with an Accosson mercury sphygmomanometer using standard techniques. Elevated blood pressure was taken as being equal to or greater than 140/90 mmHg. Hypertension was graded according to the JNC7 guidelines as mild hypertension: Blood pressure (BP) between 140–159/90–99 mmHg, moderate hypertension: BP between 160–179/99–109 mmHg and severe hypertension: BP \geq 180/110 mmHg (JNC VII, 2003).

The serum creatinine concentration of all the patients were analyzed by using the standard spectrometric method. The value of serum creatinine obtained from the laboratory was used to calculate the glomerular filtration rate (GFR) of each patient. Using the Cockcroft-Gault formula.

Statistical Analysis: This was carried out using the one way ANOVA test by the statistical package for social sciences (SPSS) 16.0 software package with the level of significance at 0.05 ($p < 0.05$). A total of 207 patients were examined from the hospital. Their ages range from 20- 80 and above with 7 class intervals and they were placed in age bracket of 10 intervals (eg, 20-29, 30-39 etc).

RESULTS

A total of 207 patients were examined with 127(61.4%) male and 80(38.6%) female. Their marital status shows that married patients were the highest with 107(51.7%) while separated patients had the lowest of 2(99.7%).

Table 1. Social – demographic distribution of study population

characteristics	No of patients examined	% of patients examined
Age group years		
20 -29 years	7	(3.4)
30 -39 years	31	(15.0)
40 - 49 years	37	(17.9)
50 - 59 years	45	(21.7)
60 - 69 years	48	(23.2)
70 - 79 years	26	(12.5)
\geq 80 years	13	(6.3)
Total	207	(100.0)
Sex		
Female	80	(38.6)
male	127	(61.4)
Total	207	(100.0)
Religion		
Christianity	180	(87.0)
Islam	27	(13.0)
Total	207	(100.0)
Marital Status		
Single	30	(14.5)
Married	107	(51.7)
Separated	20	(9.7)
Widowed	50	(24.1)
Total	207	(100.0)
Highest Education		
No formal Education	42	(20.3)
Primary Education	60	(29.0)
Secondary Education	38	(18.3)
Tertiary Education	67	(32.4)
Total	207	(100.0)

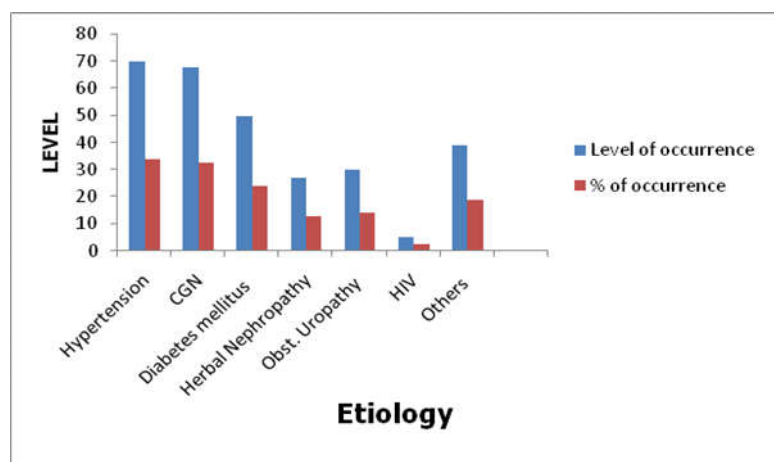
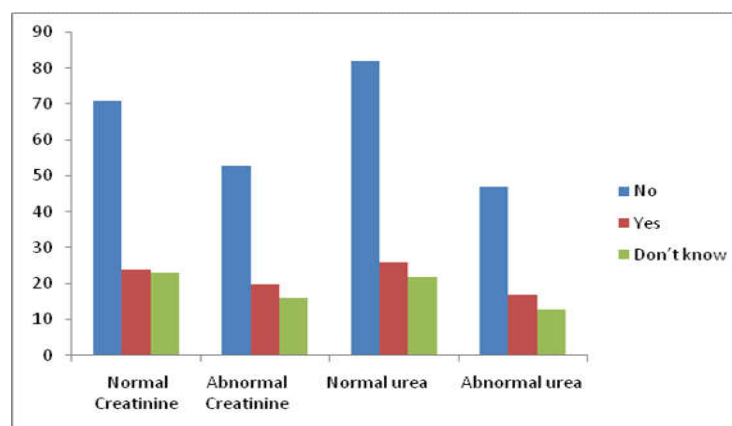


Fig. 1. Etiology of chronic Kidney Diseases in the study population

Table 2. Distribution of patient's Urea and Creatinine including their risk factors for Renal Disease.

Characteristics	No Patients with normal creatinine levels n = 118 %	No Patients with abnormal creatinine levels n = 89 %	No Patients with normal urea levels n = 130 %	No Patients with abnormal urea levels n = 77 %
Systolic blood pressure				
Normal	50 (42.4)	37 (41.6)	77 (59.2)	34 (44.2)
Elevated	68 (57.6)	52 (58.9)	53 (40.8)	43 (55.8)
Diastolic blood pressure				
Normal	72 (61.0)	33 (37.1)	84 (64.6)	28 (36.4)
Elevated	46 (39.0)	56 (62.9)	46 (35.4)	49 (63.6)
History of DM				
No	99 (83.9)	79 (88.8)	116 (89.2)	61 (79.2)
Yes	19 (16.1)	10 (11.2)	14 (10.8)	16 (20.8)
Sex				
Female	58 (49.1)	47 (52.8)	60 (46.2)	36 (46.8)
Male	60 (50.9)	42 (47.2)	70 (53.8)	41 (53.2)
Family History of HT				
No	71 (60.2)	53 (59.5)	82 (63.1)	47 (61.0)
Yes	24 (20.3)	20 (22.5)	26 (20.0)	17 (22.1)
Don't know	23 (19.5)	16 (18.0)	22 (16.9)	13 (16.9)
Excessive smoking				
No	110 (93.2)	78 (87.6)	108 (83.1)	61 (79.2)
Yes	8 (6.8)	11 (12.4)	22 (16.9)	16 (20.8)
Chronic alcoholic ingestion				
No	94 (79.7)	58 (65.2)	109 (83.8)	55 (71.4)
Yes	24 (20.3)	31 (38.8)	21 (16.2)	22 (28.6)
Age group				
Less than 55	62 (52.5)	45 (50.6)	68 (52.3)	41 (53.2)
55 years and above	56 (47.5)	44 (49.4)	62 (47.7)	36 (46.8)

**Fig. 2. Distribution of CKD patient's high blood pressure in relation to their family history**

In age distribution, it was shown that patients with the age brackets of 20-29 were the lowest 7(3.4%) while the age bracket of 60-69 were the highest patient examined 8(23.2). (Table 1). Patient's distribution of Urea and creatinine including their risk factors for renal diseases was shown that 118(57.0%) patients had normal creatinine levels, 89(43.0%) had abnormal creatinine levels. It was also shown that 130(62.8%) patient's urea tests were normal while 77(37.2%) patient's urea was abnormal (Table 2). The common etiologies of CKD were CGN 68 (32.9%), hypertension 70(33.8%) diabetes mellitus 50(24.1%), obstructive uropathy 30(14.4%), herbal nephropathy 27(13.0%), HIV 5(2.4%) and others 39(18.8%) (Figure 1). On family history of hypertension shows that out of 207 patients tested for creatinine only 44(21.2%) were aware of family history of high blood pressure, 124(59.9) patients don't know about family history of hypertension and 39(18.8%) patients were not sure if they have family history of hypertension (figure 2). For the patients tested for urea test, 43(20.8%) patients were aware of their family history of hypertension, 129(62.3%) patients were not aware while 35(16.9%) patients have no knowledge of family history of hypertension (Figure 2).

DISCUSSION

In this research, the prevalence of hypertension on Chronic Kidney Disease was examined in Aba, Abia State. The study lasted for 24 months period. A total of 207 screened for Urea/creatinine and also checked for their blood pressure. High creatinine levels were found in 89 (43.0%) patients their elevated systolic blood pressure (ESBP) of 37 (41.6%) and elevated diastolic blood pressure (EDBP) of 33 (37.1%). High urea levels were found in 77 (37.2%) patients with their ESBP of 34 (44.2%) and EDBP of 28 (36.4%). This study showed that most CKD patients do not report early to the hospital this tall with Adejumo, *et al.*, (2016) who says that patients still present very late, requiring in-patient care despite present efforts geared towards prevention and early detection of CKD. It was found that there's high increase in blood pressure amongst patients with chronic kidney disease than patients with normal urea/creatinine levels. It was observed that elevated systolic blood pressure with abnormal creatinine level was 52(58.9%) and 56(62.9%) of diastolic blood pressure while elevated systolic blood pressure with abnormal urea levels was 43(55.8%) and 49(63.6%) for diastolic blood

pressure Hypertension was graded according to the JNC7 guidelines as mild hypertension: Blood pressure (BP) between 140–159/90–99 mmHg, moderate hypertension: BP between 160–179/99–109 mmHg and severe hypertension: BP \geq 180/110 mmHg (JNC VII, 2003). In this study, it was found that there's a significant association between increasing age and CKD. patients with \leq 50years were found with lower urea and creatinine levels but was found to be high in patients above 50 years of age. This corresponded with findings of Mulder *et al.*, (2001) who reported a substantial reduction in kidney function with ageing. As CKD was commoner in subjects older than 50 years, the recommendation to screen people in this age group is an important measure for the detection of chronic kidney disease. Gender differences have a significant association with CKD in this study. It was shown that male patients examined were much in number than the female patients examined with 127(61.4%) and 80(38.6%) respectively. This findings agrees with the findings of many other studies, according to Shengel, *et al.*, (2000) in which the male gender was reported to be a non-modifiable risk factor for CKD. The common etiologies of CKD were Chronic glomerulonephritis 68 (32.9%), hypertension 70(33.8%) diabetes mellitus 50(24.1%), obstructive uropathy 30(14.4%), herbal nephropathy 27(13.0%), HIV 5(2.4%) and others 39(18.8%).which is in line with Shengel, *et al.*, (2000) and Arogundade, *et al.*, (2011) who says that patients with risk factors of CKD Hypertension, Diabetes and Obstructive Uropathy and should report to the Nephrology clinic to reduce the progression of CKD.

Conclusion

Hypertension is both a cause and a consequence of chronic kidney disease, but the prevalence of chronic kidney disease throughout the diagnostic spectrum of blood pressure has not been established. Prevention and early detection of CKD especially on the patients with elevated blood pressure are the main instruments for combating CKD in the world today. To this effect, programs have been initiated to actualize this goal. This study will be of immense help to educate patients on the urgent need to treat and reduce the risk factors for chronic kidney disease and stem further progression of renal disease.

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