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Prevalence of Hypertension and its Complications amongst Medical Admissions at the University of Nigeria Teaching Hospital, Enugu

B. J. C. ONWUBERE, S. O. IKE

ABSTRACT

Objectives: To determine the prevalence of hypertension, with its medical (end-organ) complications, among medical admissions.

Methodology: A five year review of cases in the medical wards of the University of Nigeria Teaching Hospital, Enugu, between November, 1993, and November, 1998 was undertaken.

Results: 5538 patients aged between 14 years and 98 years were admitted. Out of these, 841 (15.2%) were hypertensive, made up of males 542 (64.5%) and females 299 (35.5%). The highest number of admissions constituting 25.7% was in the 51-60 years age group, and the least (1.1%) was in the 14-20 years age group. Congestive cardiac failure accounted for 23.3% of the cases.

Conclusion: Hypertension is still a burden on the health of the nation. A more aggressive concerted action to curtail the morbidity and mortality burden of this scourge/silent killer is advocated. Nig J Int Med 2000; 3(1): 17-20.

KEY WORDS: Prevalence, Hypertension, Complications, Hospital Admissions.

INTRODUCTION

Hypertension is the most common cardiovascular disease among Africans (1). In the United States of America (USA) more than 60 million people are estimated to have high blood pressure (2). However, while the prevalence of hypertension in adults in the USA, has decreased during the past decade, principally because of lifestyle changes that are known to prevent blood pressure increase (3), that in Black Africans has been reported to be on the increase (1). Incidentally, the main factors accounting for this increase are the rapid changes that have modified the lifestyle and environment of the African. Studies from different parts of Nigeria by the Expert Committee on Non Communicable Diseases put the prevalence of hypertension in the country at 11.2%, with rates in the rural and urban communities of 9.8% and 14.6% respectively. After adjusting for age, and in line with the revised criteria by the World Health Organization, an overall 16.0% or 7.8 million of the 46.3 million population aged 15 years and above were thought to be hypertensive (4,5).

Patients with hypertension have a tendency to the primary; the most common cause of death being heart disease, with stroke and renal failure also frequent, particularly in those with significant retinopathy (6). The propor-

From: Department of Medicine, University of Nigeria Teaching Hospital, PM B 01(36), Enugu. Address Correspondence to: Dr. B. J. C. Onwubere, Department of Medicine, University of Nigeria Teaching Hospital, PM B 01(3), Enugu. Abbreviations: CCF, Congestive cardiac failure; CVD, Cerebrovascular disease; CVS, Cardiovascular system; GFR, Glomerular renal failure; HIV, Infection; VSMC, Vascular Smooth Muscle Cells.

Nig J Int Med Vol 3 No 1 2000

Review of Admissions - Cardiovascular System

Figure 1 illustrates the pattern of the admissions by the systems involved. Cardiovascular diseases (CVD) accounted for 16.31% of the total 5538 cases. The Central Nervous System had
the highest incidence of admissions (17.01%). The Renal system ranked after the CVS with 13.89% of the cases.

Figure 2 shows the frequency of hypertensive complications. The total number of hypertensive related cases, with the complications was 841 (15.2%) of the admissions. While uncomplicated hypertension constituted 314 (37.3%) cases, hypertensive congestive cardiac failure accounted for 196 (23.3%), hypertensive cerebrovascular disease 131 (15.6%), and hypertensive retinopathy 220 (26.5%), of the total 841 hypertensive related cases.

Figure 3 depicts the age and sex distribution of these hypertensive related cases. While 542 (64.59%) were males, 299 (35.41%) were females. These represent 15.4% and 14.9% respectively, of the total male 3529 and total female (2009) admissions. The total medical admissions, however, showed 63.7% to be males, and 36.3% females. This was a progressive increase in the occurrence of hypertension in the age groups, till a peak (25.7%) in the 51-60 years age group, with a progressive decline thereafter, to 1.8%, in the 90+ years age group. The age groups 60 years and below accounted for 575 (68.3%), of the total hypertensive related cases admitted. The age groups 80 years and below, on the other hand, accounted for 18% (21.8%) of the total 841 hypertension related cases. Fifty-three of these belonged to the uncomplicated group (16.9% of the 314 patients in this group) and 130 patients were in the pooled complications group (24.3% of 527 patients).

Table 1 illustrates the proportion of the total hypertensive related cases that was compounded by hypertension (both in uncomplicated hypertension and hypertensive congestive cardiac failure). More than half of the total CVS presentations (56.5%) were of hypertensive origin. The peak presentation was from the 41-70 age brackets. Target end-organ damage distribution showed CCF accounting for 37.2% of the complications, CVS 24.7%, and CRF 20.2%. Out of a total of 469 CRF patients admitted, 109 (23.2%) were caused by hypertension. More than 70% (350) of these hypertensive CRF cases were in the 31-60 years age groups.
Table 1: Proportion of Hypertension in CVS Cases

<table>
<thead>
<tr>
<th>Age Distribution</th>
<th>Total Cardiovascular Cases</th>
<th>Uncomplicated HBP + CCF2 HBP No. of Cases (Percentage)</th>
</tr>
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<tbody>
<tr>
<td>14 – 20</td>
<td>44</td>
<td>3 (0.3)</td>
</tr>
<tr>
<td>21 – 30</td>
<td>75</td>
<td>22 (2.4)</td>
</tr>
<tr>
<td>31 – 40</td>
<td>140</td>
<td>72 (8.0)</td>
</tr>
<tr>
<td>41 – 50</td>
<td>169</td>
<td>93 (10.3)</td>
</tr>
<tr>
<td>51 – 60</td>
<td>197</td>
<td>139 (15.4)</td>
</tr>
<tr>
<td>61 – 70</td>
<td>172</td>
<td>117 (13.0)</td>
</tr>
<tr>
<td>71 – 80</td>
<td>85</td>
<td>51 (5.7)</td>
</tr>
<tr>
<td>&gt;80</td>
<td>21</td>
<td>13 (1.4)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>903</td>
<td>510 (56.5)</td>
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Fig. 3: Age and Sex Distribution of Hypertension-related Cases

DISCUSSION
The prevalence of hypertension among medical admissions, from this study, was 15.2%. This is in comparison with the 11.2% rate established by the National Expert Committee on Non Communicable Diseases (4). While the National Expert Committee reported 11.1% crude prevalence in males, and 11.2% in females (4), this study showed the male crude prevalence rate to be 15.4% and the female, 14.9%. Even though these are not significantly different from each other, the study, nonetheless, showed a higher prevalence rate than that for the nation as a whole, as established by the survey. This difference may be explained by the fact that the National Expert Committee survey involved a wider population (of 16,019) of people not specifically diagnosed as medically ill, without the confounding factors of ill health. However, the trend of prevalence rates was essentially maintained in the study, as in the Survey report, except for the slight decrease in that of the females.

The prevalence of hypertension in both sexes was found to rise with age, such that by the seventh decade nearly one in every three persons was hypertensive, as reported by the Expert Committee Survey (4). This is, however, contrasted in this study which shows a rather progressive increase in prevalence, peaking at 51–60 years age group, to decline thereafter, to 21.3% in the 61–70 years age group and 1.8% in those above 80 years of age. Studies reported from the United States of America shows that hypertension increased with age, affecting up to 60% of Americans older than 65years of age (14), with more than 65% of those above 80years in the population diagnosed hypertensive (15). This latter finding is in keeping with the Expert Committee report on hypertension in Nigeria. The disparity in the study may be due to multifarious reasons. A preponderance of the elderly, above 60 years of age, may prefer out-patient treatment. While cultural factors and beliefs, still reasonably strong in our environment, may influence especially the elderly or their relatives into seeking alternative means of treatment, when ill, on the conviction that orthodox medicine would avail little or no help. There is a general disinclination to pursue further aggressive treatment for an elderly patient by relatives as contrasted to a younger fellow who may still have longer years to live. This trend and the reasons lend themselves to further study, especially since the same pattern is maintained in the total admissions reviewed, as a total of only 398 (7.18%) of the 5538 patients were above 70 years of age; a picture contrasted in other environments, especially in developed countries (16,17). It may be a reflection of the reality of the economic burden of ill-health, especially hypertension, in a population where there is no state funded health welfare scheme. From the study, hypertensive congestive cardiac failure accounted for the highest incidence of complication from hypertension, with 37.2% followed by cerebrovascular disease (24.9%) and chronic renal failure (20.7%). This is in line with established literature (6,11,18,19).

The attendant mortality consequent upon these complications (20) with the lifelong morbidity burden paint a very glaring picture of the effect of hypertension on the society. While 56.5% of

Nig J Int Med Vol 3 No 1 2000

Review of Admissions - Omurhabe and Ike
the total admission cases in the cardiovascular system (903) was attributed to hypertension, about 25% (109) of the total 465 chronic renal failure admission cases was due to hypertension. This trend also agrees with published works (4, 20, 21). However, while elevated mean diastolic blood pressure and alcohol consumption in males, and elevated mean diastolic blood pressure and smoking for women, were associated most significantly with stroke in a study in Scotland[12], hypertension and diabetes mellitus rated more highly in predisposition to CVD in this review.

Notably absent in this study is the association of hypertension with ischemic heart disease. A number of factors may account for this. Ischemic heart disease where suspected or established, is treated in the Intensive Care Unit of the hospital, which setting was not included in this study. The diagnosis of IHD will require enlisting an exercise test, or coronary angiography which services are not fully functional in the centre at the moment. As well corrobora-
ated by literature, the study may also be an endorsement of the relative uncommonness of IHD in the African hypertensive population, unlike in Caucasians where IHD is prevalent[9]. The National Expert Committee on Non-Communicable Disease, rated the combination of three risk factors for Coronary Heart Disease, at just 0.013% of the study population, indicating the rarity (24).

It is equally significant to note that while studies in the United States in community surveys over a period of 20 years, from 1971-1972 and 1984-1991, showed an increase among hypertensive Americans of awareness of their condition, from 51% to 84%, and those on trea-
m ent from 36 to 73%, only about a third of Nigerians who see hypertensive are aware of their condition, and about two-thirds of those who are aware (eventu-
ating to 22%) are on treatment (4).

The study has shown that there is a relatively high prevalence of hypertension among medical in-patients at the University of Nigeria Teaching Hospi-
tal, Enugu. The confirmed pattern of complications in hypertension has also been upheld by the study, with CCF being highest, which is in consonance with other studies.

The retrospective nature of the study limits proper case identification and work-up (such as proper investigations etc.). However, with setting in a tertiary institution of high rating, basic investigations were at least carried out in each of the reviewed cases. The urgent need for awareness, early detec-
tion and effective control of hypertension is called for from this study.

REFERENCES

2. Selemon GL. Initial therapy for hyper-
7. Mordi VP, Okonkwo BO. Sodium depletion in Lagos and their relationship to Heart Disease, at just 0.013% of the study population, indicating the rarity (24).
9. Olujomoh VO, Okonkwo BO, Dietz M, Akpokodje GO. Diabetic Mellitus and Hypertension in an African Popu-
ual Medicine. Kelley WN (Ed). Philadel-
15. Rustin LR. Hypertension — Prevalence of Age in Civilian Non-Insitutionalised Populations. In: Principles of Ambulatory Medicine, 8th Ed. College Front Centres for Disease Control and Prevention, National Centre for Health Statistics, National Health and Nutri-
18. Perry IHO, Ilumere AC. Cerebrovascular Dis.
cease in Nigeria. Ibadan University. 1968.
22. Starr JM, Thomas B, Whitley LS. Population Risk Factors for Hospitalisa-
tion for stroke in Scotland. Interna-