INTRODUCTION
Hypertension is the most common cardiovascular disease worldwide. It affects 10-15% of adult African population and cuts across every socioeconomic group. Hypertension-related complications are very common and tend to run a more aggressive course in Africans and African-Americans than in Caucasians. The magnitude of the health burden posed by hypertension in Nigeria is quite appreciable as shown in various studies. However, there is a paucity of hard data on the morbidity and mortality rates from this disease in our environment. This study was therefore carried out to provide information on the case fatality rate among hypertension-related admissions into our teaching hospital.

PATIENTS AND METHODS
The medical records, comprising admission and discharge registers, death certificates, as well as case notes, of in-patients with hypertension-related diagnoses admitted into the medical wards of the University of Nigeria Teaching Hospital (UNTH) Enugu, were reviewed. The age, sex, year of admission, as well as probable causes of death were obtained from these records. The period covered was from February 1995 to December 1999. The diagnosis of hypertension was based on the WHO/ISH cut-off (140/90mmHg). Hypertension-related admissions were considered to be patients admitted as a result of hypertension or its complications. From the available data, the annual and overall case fatality rates were calculated for the period of study. The annual case fatality rate was defined as number of deaths due to hypertension in a specific year/number of hypertension-related admissions in that year x 100(%). The overall case fatality rate was defined as total number of deaths due to hypertension in a specific year/total number of hypertension-related admissions in that year x 100(%).

RESULTS
7220 patients were admitted into the medical wards during the period under review. Of these, 445 (6.2%) were due to hypertension-related causes. Of the later, 285 (64%) were males while 160 (36%) were females. One hundred and ninety one of the hypertension-related admissions died, giving a case fatality of 42.9%. The mean age at death was 54.8±15.8 years (53.5±15.9 years for males; 57.2±15.4 years for females; t=2.47, df=189, p=0.117). Sixty six percent of these were males while thirty four percent were females. Eighty six (45%) of the deaths occurred during acute hypertensive crises such as cerebrovascular accidents, hypertensive encephalopathy, and acute renal failure. Other important complications leading to death were congestive cardiac failure, accounting for thirty three cases (17.3%); and chronic renal failure 32 (16.8%). In twenty one (11%) hypertension-related admissions, the causes of death were not documented.

CONCLUSION
Hypertension, with its related complications, constitute a major cause of morbidity and mortality in our medical wards. The case fatality rate is very high and often mostly avoidable complications were responsible. There is need to further study the determinants of these avoidable causes of death.

KEY WORDS: Case fatality, hypertension-related admissions, Enugu.
RESULTS

Table 1 shows the yearly distribution of admissions into the medical wards. A total of 7220 patients were admitted into the medical wards during the study period. Of these 4528 were males, while 2692 were females giving a male: female ratio of 1.68:1. Four hundred and forty five of these admissions were due to hypertension and its related complications. This constituted 6.2% of the total medical admissions. Of the hypertension-related admissions, 285 (64%) were males while 160 (36%) were females giving a male is to female ratio of 1.78:1. There was no noticeable change in number of patients admitted from year to year.

Figure 1 shows the distribution of hypertension-related deaths by sex and age group. Mortality was generally higher in males than females. The figure also showed that most of the deaths occurred between the age groups 40-69 years with a peak at 60-69 years. The mean age at death was 54.8±15.8 years (53.5±15.9 years for males and 57.2±15.4 years for females; t=2.47, df=139, p=0.117).

Figure 2 depicts the annual and overall hypertension-related admissions (HTN Rel. adm.), deaths (HTN Rel.deaths) and case fatality rates for the period of study. One hundred and ninety one (191) of the four hundred and forty five (445) patients admitted on account of hypertension and its associated complications died despite all efforts to salvage them giving a case fatality rate of 42.9%. The mean, range and median annual case fatality rates for the 5-year period were 43.7%, 31.6% - 57.5% and 45.6% respectively. Hypertension related deaths contributed 9.6% of the total in-patient deaths. The case fatality rates rose progressively between 1996 and 1998 and then fell. The major causes of death in patients with hypertension and its complications are shown in Table 2. At least 45% of the deaths resulted from hypertensive emergencies. These were cases due to cerebrovascular accidents (CVA), hypertensive encephalopathy, and acute renal failure. CVA was the leading cause of death, followed by congestive cardiac failure (CCF) and chronic renal failure (CRF). In 21 (11%) of the hypertension-related deaths, the cause of death was not documented. More males died from CVA, congestive cardiac failure, chronic renal failure and hypertensive encephalopathy. More females however, died from multi-infarct dementia and diabetic disorder with a ratio of 1.5:1 and 1.3:1 respectively. Overall mortality was higher in males than females with a ratio of 2:1.

Table 1: Yearly Distribution of Admissions in the Medical Ward.

<table>
<thead>
<tr>
<th>Year</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
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<tr>
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<td>811</td>
<td>412</td>
<td>1223</td>
<td>89</td>
<td>41</td>
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</tr>
<tr>
<td>1994</td>
<td>787</td>
<td>500</td>
<td>1287</td>
<td>36</td>
<td>33</td>
<td>70</td>
</tr>
<tr>
<td>1995</td>
<td>1038</td>
<td>617</td>
<td>1655</td>
<td>44</td>
<td>26</td>
<td>70</td>
</tr>
<tr>
<td>1996</td>
<td>1922</td>
<td>856</td>
<td>2778</td>
<td>62</td>
<td>25</td>
<td>87</td>
</tr>
<tr>
<td>1997</td>
<td>870</td>
<td>607</td>
<td>1477</td>
<td>44</td>
<td>35</td>
<td>79</td>
</tr>
</tbody>
</table>

Total 4528 2692 7220 285 160 445

Figure 1: Distribution of Hypertension-Related Deaths by Age Group and Sex.

Figure 2: Annual and Overall Hypertension Related Admissions, Hypertension Related Deaths, and Case Fatality Rates.
Hypertension is the most prevalent cardiovascular disease not only in Africa but also globally. Its complications are many and include congestive cardiac failure, cerebrovascular disease, chronic renal failure, ischaemic heart disease, among others. This study showed that hypertension-related disorders accounted for 6.2% of the total medical admissions over the period studied. This value is comparable with findings in Sokoto, North-West Nigeria, though lower than 11.2% rate established by the National Expert Committee on Non-communicable diseases. The case fatality of 42.9% found in this study is quite high. Studies from Benin (Nigeria) and Burkina Faso showed rates of 17.7% and 20% respectively. The higher mortality recorded for men is in accordance with known increased morbidity from hypertension associated with male gender. Rather uncommon in this review is death from Ischaemic heart disease (IHD), which is a major killer in industrialized countries. IHD in the African remains relatively uncommon although some studies suggest that it is on the increase. However, since autopsy reports on hypertension-related deaths were not reviewed; some complications such as IHD may have been missed.

CONCLUSION
This review has shown that many cases of hypertension-related admissions died from avoidable and treatable causes. Most of the death occurred among the most productive age group. The result of this study, though retrospective, requiring cautious interpretation, however point to the need for prospective work in this area of cardiovascular medicine. A continuing campaign for awareness of systemic hypertension and its complications especially through the mass media cannot be overemphasized.

REFERENCES


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