

Incidence and Patterns of Cardiovascular Disease in North Western Nigeria

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SUMMARY

Background: Cardiovascular disease (CVD) has been major problem in the developed and developing countries and its burden in these countries is overwhelming. There is a dearth of literature and data on the prevalence and patterns of CVD in developing countries, especially Nigeria.

Objectives: This study was carried out to determine the most common cardiovascular disorder, the mostly affected age and sex groups and annual increase/decrease between 2001 and 2005 in Northwestern Nigeria.

Methods: Our study reviewed the pattern and incidence of CVD in North western Nigeria. Case notes of patients in Aminu Kano Teaching Hospital and Usman Dan Fodio University Teaching Hospital were reviewed between 2001 and 2005. These two teaching hospitals provide tertiary health care services to six out of seven states that form north western Nigeria with a population of 29,720,322 Nigerians.

Results: A total number of 4103 case notes of CVDs were reviewed out of which 2159(52.69%) were males while 1944(47.40%) were females. A steady rise in the incidence of CVD between 2001-2005 was observed. Hypertension (39.1%) was the most prevalent CVDs while congenital heart disease (1.1%) had the lowest.

Conclusion: It was concluded that hypertension was the most prevalent CVD while congenital heart disease was the lowest. A steady increase in the incidence of CVD was observed during the period under review.

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Key words: prevalence, pattern, CVDs, northwestern Nigeria.

BACKGROUND OF THE STUDY

Cardiovascular diseases are the leading cause of mortality and morbidity in developed countries and they are emerging as prominent public health problems in developing countries^{1,2}. Boon *et al*³ defined cardiovascular disease as any disorder, abnormality or failure to function well, relating to the heart and blood vessels or the circulation¹.

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Concern about increasing rates of death and disability due to cardiovascular diseases in non western countries is often met with skepticism; whether they constitute a serious public health problem is unknown⁴. He further stated that with justifiable alarm about the spread of Human Immunodeficiency Virus and AIDS, and with old foes such as malaria and tuberculosis still posing formidable challenges in many developing countries, it is understandable that epidemics of cardiovascular disease have insidiously established themselves without attracting global attention or local action⁴.

World Health Organization report (2002) revealed that 80% of deaths from cardiovascular diseases and 87% of related disability currently occur in low and middle income countries¹. In this report, it was further emphasized that cardiovascular diseases have become the leading cause of death in many developing countries and will soon attain that status in several others¹. The high burden of mortality from cardiovascular causes in developing countries which is estimated at 9 million in 1990 and expected to increase to 19 million by 2020, is only partially explained by their large populations⁵. Reddy⁶ reported that the rate of death due to cardiovascular disease among persons 15 to 59 years of age is 3 to 8 times as high in Tanzania and Nigeria as in England and Wales. It was concluded in this report that death and disability occurring in midlife have disastrous consequences for families who lose wage earners, and the resulting loss of productivity adversely affects national development⁶. Oviasu was of the opinion that almost all unexpected deaths of medical origin in Nigeria are due to cardiovascular causes⁷.

A study conducted in South Western Nigeria by Adedoyin and Adesoye revealed that, of the 1004 cardiovascular disease patients recorded between 1997 and 2001, those with heart failure had the highest occurrence 384(35%) while congenital heart disease has the Slowest occurrence 9.0 (0.8%). In that study hypertension accounted for 353(32%), stroke 192(17.4%), cardiomyopathies 84(7.6%) and others 62(5.6%)⁸. The study further revealed that men 671(60.8%) were found to have higher incidence of cardiovascular disorders than women 633(39.2%)⁸. Shakaib *et al* confirmed the existence of ethnic differences in hypertension control and in cardiovascular and renal outcomes, which they attributed to factors such as biological, cultural, social, healthcare provider and healthcare system factors like insurance and access to care and medication⁹.

Although sharp shifts in demographic pattern and life style have resulted from urbanization and industrialization, the

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globalization that constituted the tailwind of the 20th century propelled developing countries into the world wide epidemic of cardiovascular disease⁵.

Of the 24 million people expected to die of cardiovascular diseases in 2020, about 9.3 million will be between 30 and 69 years of age, most of them will be in the developing countries¹. Which was the most prevalent form of cardiovascular disease was unknown and whether the incidence of cardiovascular disease is increasing in North Western Nigeria was unknown. Studies have been carried out in western countries on the pattern and incidence of cardiovascular diseases^{2,4}. Most of these studies conducted in the developed countries are not applicable in the environment of this study due to problems of under or over estimation⁸. The existence of ethnic differences in hypertension and cardiovascular diseases as pointed out by Shakaib et al⁹ and Bertoni et al¹⁰ is most likely to make the study of Adedoyin and Adesoye⁸ not applicable in North-Western part of Nigeria^{8,9,10}. Hence, there is need to determine the pattern and incidence of cardiovascular disease in this part of the country. We hypothesized that:

There would not be significant difference in the incidence of cardiovascular disease between male and female.

There would be no significant difference in the incidence of cardiovascular diseases between different ages.

METHODOLOGY

Ethical approval was obtained from ethical committees of Aminu Kano and Usman Dan Fodio Teaching Hospitals where this study was conducted. Aminu Kano Teaching Hospital and Usman Dan Fodio provide tertiary healthcare services to six states in the North Western part of Nigeria with a total population of 29,720,322 (2006 census)

Kebbi State	=	3,238,628
Jigawa State	=	4,348,649
Kano State	=	9,383,682
Katsina State	=	5,792,578
Sokoto State	=	3,696,999
Zamfara State	=	3,259,816
Total	=	29,720,322 (2006 Census).

This was a descriptive retrospective study in which case notes of patients with records of cardiovascular diseases were reviewed at Health Record Departments of the two Teaching Hospitals between 2001 and 2005. A convenience sampling technique was employed in this study.

Our definition of cardiovascular diseases is those diseases that affect the heart and blood vessels. Information extracted from each case note was type of cardiovascular disease (hypertension, heart failure, congenital heart disease and rheumatic heart disease), age, sex, length of hospitalisation and treatment outcome (dead or alive). The data obtained from the case notes were reduced and tabulated and the results were subjected to descriptive statistical analysis of percentages. Tables and pie charts were used to give a clear view of the information obtained.

RESULTS

Within the period reviewed, a total number of 4103 cases of

cardiovascular diseases were recorded. A total number of 2159 (52.60 %) males reported different types of cardiovascular disease while 1944 (47.40%) females presented with different types of cardiovascular diseases (figure 1). The highest incidence of CVD was seen between the age ranges of 40-49 years (22.09 %) while the lowest incidence was seen between the age ranges of = 19 years (3.97%) (figure 2). A steady increase in the incidence of cardiovascular diseases was observed in North Western Nigeria from 2001 (14.1%) to 2005 (24.2%) (figure 3).

Cardiovascular disease with highest occurrence was hypertension (39.1%) while congenital heart disease had lowest occurrence (1.1%). Hypertension had the highest occurrence of mortality 331 (30.85%) while congenital heart disease had the lowest number of deaths 6 (0.56%) (figure 4).

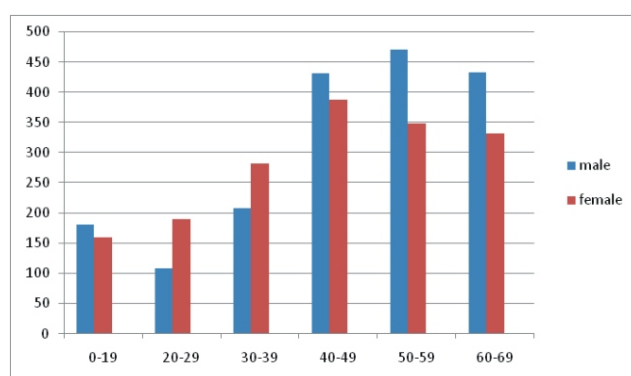


Figure 1: Age and Gender Distribution

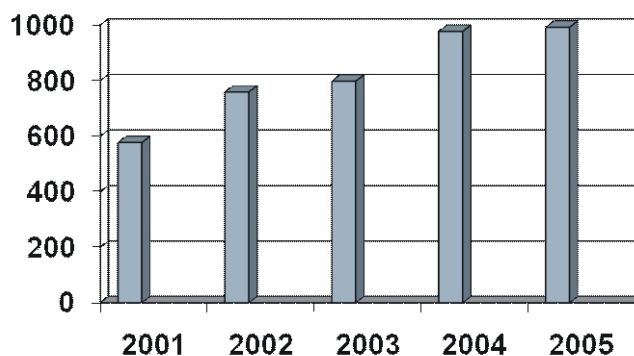


Figure 2- Yearly Distribution of CVDs

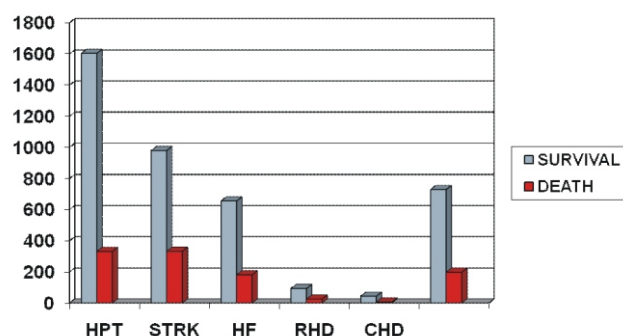


Figure 3- Mortality of Cardiovascular Diseases

DISCUSSION

This study was carried out to determine the incidence and pattern of cardiovascular disease in North Western Nigeria. North Western Nigerians within 40-49 years of age group had the highest incidence of CVD. This was in contrast with the work of Adedoyin and Adesoye⁸ where they observed the highest incidence of CVD in 60-69 years age group in South Western Nigerians. However, 46.7% of early age of CVD death occurs in developing countries unlike 26.5% early age of CVD deaths in developed countries⁵. Our finding also shows that male North Western Nigerians had highest incidence of CVD. This is in accordance with the studies of Adedoyin and Adesoye conducted in south western Nigeria and Trigo among the Cubans^{8, 11}. The highest incidence of CVD observed in male might be due to type life styles indulge by males, heavy smoking and alcohol consumption than females. A steady rise in the incidence of CVD was observed in North Western Nigeria between 2001–2005. Our finding contradicts the previous study carried out in South Western Nigeria in which steady decline of CVD was observed between 1997–2001 by Adedoyin and Adesoye⁸. Steady increase observed in our study may be due to problem of accessibility to good and qualitative healthcare delivery system, and malfunctioning of primary health care in our communities. Though unpublished, there is high apathy among the North Westerners towards orthodox medicine.

Hypertension, closely followed by stroke, is the most prevalent CVD while CHD is the least prevalent CVD observed in North Western Nigeria. Though CHD is also the least prevalent CVD in North western Nigeria, same as that of South Western Nigeria, hypertension is the most common form of CVD in North Western Nigeria unlike south western Nigeria where heart failure was the most prevalent⁸. The study of Adedoyin and Adesoye⁸ needs to be interpreted with caution because the study was sourced from one of the teaching hospitals in south western Nigeria and the records of the patients used was inadequate⁸. Our finding was in line with other studies carried out in Kenya by Lodenyo *et al*¹² and in Cameroun by Kotto and Bouelet¹³. Between the period reviewed, stroke recorded the highest death rate followed by hypertension while coronary heart disease recorded least death rate in North Western Nigeria. The relatively low/ absence of conventional CVD enlightenment campaign, high illiteracy level among the rural dwellers and general lackadaisical attitude towards seeking solution from orthodox medicine may account for high death rate from stroke. Majority of stroke victims are usually brought to the orthodox health facilities when the tradomedical intervention fails after which a

lot of complications might have set in.

RECOMMENDATION

It is recommended that all encompassing health promotion policy which will include people in all tiers of government should be put in place about preventing cardiovascular diseases through the use of active exercise participation, diet and regular medical check-up.

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