Changing Trend in Coronary Heart Disease in Nigeria

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ABSTRACT

Background: *Coronary Heart Disease (CHD) is the greatest cause of death in Western countries but reported to be rare in sub-Saharan Africa. There are suggestions that the incidence of coronary heart disease is rising in Nigeria as a result of many factors. This review looks at the burden of CHD in Nigeria and its risk factors and determines if there is a change in the trend of this disease and what might be responsible for this change.*

Methods: *A Medline search and search of other internet search engines for published studies on CHD in Africa and Nigeria was done. The journals were sourced online and from public libraries and the publications were studied.*

Results: *CHD is still an uncommon cardiovascular disease in Nigeria. There is a rising trend in the incidence over the last 4 decades in urban areas. The risk factors of CHD commonly found in Nigerian patients include hypertension, diabetes mellitus(DM), hyperlipidaemia, obesity, and sedentary lifestyle.*

Conclusion: *Coronary Heart disease is still relatively uncommon in Nigeria and does not contribute significantly to morbidity and mortality from cardiovascular diseases in Nigeria. There is however substantial evidence that the incidence of CHD has increased over the last four decades. The factors responsible for this trend include, increasing prevalence of CHD risk factors, urbanization and adoption of western diet and lifestyle.*

Key words: *CHD, Hypertension, Hyperlipidaemia.*

Afrimedic Journal 2010; 1(1): 1-4

INTRODUCTION

Coronary heart disease (CHD) is a disease entity resulting from blockage of the coronary artery manifesting clinically as stable angina, unstable angina, myocardial infarction, heart failure, arrhythmias and sudden death[1].

Coronary heart disease causes more deaths than any other illness in the developed world [2]. However, coronary artery disease has been reported to be rare in sub - Saharan African countries including Nigeria[3]. There is growing concern that the incidence of coronary heart disease is rising in Nigeria and other sub Saharan Africa countries and portends a grave situation in this region of the world where most health resources are channeled into combating infectious diseases such as tuberculosis, Human Immunodeficiency Virus(HIV) , Acquired Immune Deficiency Syndrome (AIDS) and Malaria[3].

This review is an appraisal of the trend of CHD in Nigeria from colonial times to the present based on published data in order to determine if it is becoming more common and what may be responsible for the new trend.

EPIDEMIOLOGY IN NIGERIA

Early reports on coronary heart disease in Nigeria dates back to the colonial era. The annual Medical and Sanitary reports sent regularly to the colonial secretary in London from Nigeria and Ghana mentioned rheumatic heart fever, rheumatic heart disease, congenital heart disease, myocarditis, endocarditis, and stroke as common cardiovascular diseases from these countries while Coronary heart disease was not mentioned.[4]

In the postcolonial era, a 10-year retrospective study from 1961 to 1970 by Falase et al[5] at the University College Hospital Ibadan documented only 10 cases of myocardial infarction over the 10 year period and the admission rate for myocardial infarction was 1 in 20,000.

In Ile-Ife the South-West of Nigeria, Ogunowo et al [6] in 1986 studied the coronary arteries of 111 consecutive Nigerians at necropsy and coronary occlusive disease occurred in 8 subjects(7.2%).

In another report in Ile Ife 50 cases of sudden death were studied at necropsy and only two cases of myocardial infarction were found[7]. It was reported also that hypertensive acute left ventricular failure and haemorrhagic cerebrovascular accident were the major causes of sudden death in that environment.

In Lagos, a 15 year case note review of medical admissions at the Lagos University Teaching Hospital (LUTH) by Oke and Talabi[8] found an incidence of 1 in 13,500 for ischaemic heart disease. Oke and Adebola[9] reported a 2.6 % prevalence of ischaemic heart disease from a 10-year review of Intensive Care Unit admissions at LUTH.

In northern part of Nigeria, available data reveal a similar pattern of low incidence of coronary heart disease. Danbauchi[10] reported that only 10 cases of ischaemic heart disease were seen at Ahmadu Bello University Teaching

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Hospital over the ten year period 1985-1994. The diagnosis was based on symptoms and electrocardiography and in some cases, angiography. Three out of the 10 cases were non Nigerians of Asian nationality. These available data suggest that there is a trend of increase in the incidence of CHD in Nigeria over the last 5 decades.

TREND IN RISK FACTORS OF CHD

The risk factors for CHD are classified into; Modifiable, Non Modifiable and Emerging risk factors.

The modifiable risk factors are hypertension, diabetes mellitus (DM), dyslipidaemia, tobacco smoking, obesity, sedentary life style[11].

The non-modifiable factors include advancing age, male sex, family history of premature cardiovascular events, and race[11].

The emerging risk factors include elevated homocysteine, small dense lipoprotein (Lpa), plasminogen activator inhibitor, inflammatory markers such as C-reactive protein, infectious agents like chlamydia[11].

HYPERTENSION

Hypertension is the commonest cardiovascular disease in Nigeria and most African countries[12]. The prevalence of hypertension in Nigeria in 1997 was estimated to be 8-10 % in rural setting and 10-12% in urban population[13]. Olatunbosun et al[14] suggested that there is a trend of increase in prevalence of hypertension in urban Nigerian population. It is likely that the increasing prevalence of hypertension may lead to increase in CHD.

DIABETES MELLITUS (DM)

DM is one of the major traditional risk factors of CHD. Extrapolations from existing data suggest that 0.5% - 10% of adult population in Africa suffer from DM[15]. It has been postulated that the prevalence of DM has increased by two to ten folds in both rural and urban settings in most African countries[16]. In Nigeria, a study in a rural Northern Nigeria in 1999 by Okesina et al[17] reported a DM prevalence of 2.6% while another study in a village near Zaria documented a prevalence of 2.0%[18]. Owoaje et al[19] reported a DM prevalence of 2.8% in Ibadan.

DYSLIPIDAEMIA

There are reports, which showed that hyperlipidaemia was not common in Nigeria about 3 decades ago. A study done in Lagos in 1977 documented mean total cholesterol of 3.54 mmol/L in the general populations[20]. In the nationwide study on non communicable disease in 1997 by the Federal Ministry of Health, the prevalence of hypercholesterolaemia was 4% [13]. A screening study on cholesterol in the elderly population in Benin, Nigeria, showed a high prevalence of 27.6% with a mean total cholesterol of 4.2 mmol/L[21].

A recent survey in Port Harcourt an urban city in the Niger Delta area reported the prevalence of hypercholesterolaemia (serum cholesterol of > 6.5mmol/L) in the study population to be 31.52%.[22] It was also reported in the study that there was increase in total and low density cholesterol (LDL) with increasing age and increasing social class. These current studies suggest that the prevalence of hyperlipidaemia is increasing in urban areas and might contribute to rising cases of CHD.

OBESITY

Obesity is a cardiovascular risk factor and also is a risk factor in development of hypertension and DM. Studies in Nigeria reveal that obesity is commoner in women than men. One study found a rate of 8.3% in men and 35.7% in women[23] .

In a study on CHD risk factors in Nigerians with systemic hypertension, Opadijo et al[24] reported that 54% of the hypertensives with low high density lipoprotein (HDL) to total cholesterol ratio had body mass index (BMI) above 25kg/m^2. Akpa et al[22] also found that 33.6% of patients in their study on lipid profile in healthy adult Nigerians were obese with BMI above 30kg/m^2. There seems to be aggregation of CHD risk factors in Nigerian patients with hypertension and hyperlipidaemia based on these reports.

CIGARETTE SMOKING

Tobacco smoking is a well-known risk factor for atherosclerosis and CHD. There are reports that use of tobacco products has been on the rise in Africa including Nigeria[25]. The prevalence of tobacco smoking is higher in urban areas compared to rural areas[25]. Obot[26] reported that the overall prevalence of regular smoking in the Nigerian population is 22.6%. It is of note that tobacco smoking is practiced by young people in Nigeria[26]. A study by Ele and Ibe in Nnewi, Nigeria showed that parents and family members who smoke influence adoption of smoking habit in young females[27].

SEDENTARY LIFE STYLE

Exercise and regular physical activity is thought to be protective against cardiovascular diseases. In Nigeria, rural dwellers engage more in physical activities compared

to those in urban dwellers due to farm work and walking long distances due to poor transport system. It was noted from a study in Zaria, Northern Nigeria that all the four patients who had myocardial infarction in their centre in 2004 did not engage in any form of manual labour and all belong to the higher socioeconomic class[28].

EMERGING RISK FACTORS

The role of emerging risk factors also referred to as the newer risk factors in the pathogenesis of coronary atherosclerosis still remain controversial[11]. Ebesunun et al[29] found significant elevation of Lp(a) in patients diagnosed with hypertension, hypertensive heart disease or ischaemic heart disease in Ibadan compared to their matched healthy controls but no significant difference in serum homocysteine levels in both groups. A similar study in Gombe in Northern Nigeria did not find any significant difference in the serum homocysteine level of patients with myocardial infarction or stroke compared to their age and sex matched healthy controls[30].

CLINICAL PRESENTATION OF CHD IN NIGERIA

CHD presents commonly with typical chest pain, left ventricular failure and cardiogenic shock in majority of patients in studies done in different parts of the country[28,31]. Anterior septal and anterior lateral infarction appear to be the common pattern of infarction in Nigerians[8,31].

CONCLUSION

CHD is still relatively uncommon in Nigeria and does not contribute significantly to morbidity and mortality from cardiovascular diseases in Nigeria. There is however substantial evidence that the incidence of CHD has increased over the last four decades. The factors responsible for this trend include increasing prevalence of CHD risk factors, urbanization and adoption of western diet and lifestyle. Nigeria may be going through the epidemiological transition with rising incidence of chronic degenerative diseases and cardiovascular diseases and cancer with coexistence of infectious disease and nutritional deficiencies. There is need for increased awareness and education of the general population on prevention and control of the risk factors and training of health professionals on appropriate diagnosis and management of CHD.

REFERENCES

1. Bloomfield P, Bradbury A, Grubb NR, Newly D.E. Cardiovascular disease In: Boon NA, Colledge NR, Walker BR, Hunter JA (eds). Davidson's Principles and Practices of Medicine. 20th edition. Churchill Livingstone Elsevier Edinburgh, 2005: 519- 646.
2. Selwyn AP, Braunwald E. Ischaemic Heart Disease. In : Braunwald E, Fauci AS, Kasper DL, Hauser AL, Longo DL, Jameson JL (eds). Harrison's Principles of Internal Medicine. 16th edition. MacGraw Hill, USA, 2005: 1434-1444.
3. Mensah GA Ischaemic Heart disease in Africa. Heart 2008;94: 836- 843.
4. Walker ARP, Sareli P. Coronary heart disease. Outlook for Africa. J R Soc Med 1997; 90: 23-27.
5. Falase AO, Cole TO, Osuntokun BO. Myocardial Infarction in Nigerians. Trop Geog Med 1973; 25:147-150.
6. Ogunowo PO, Odesanmi WO, Andy JJ. Coronary artery pathology of 111 consecutive Nigerians. Tran R. Soc Trop Med Hyg 1986; 80(6) : 923- 926.
7. Rotimi O, Ajayi AA, Odesanmi WO. Sudden unexpected death from cardiac causes in Nigerians: a review of 50 autopsied cases. Int J. Cardiol 1998; 63(2): 111- 115.
8. Oke DA, Talabi HA. Myocardial Infarction as seen in the Lagos University Teaching Hospital. Nig. J. Med 1997; 6 : 43- 45.
9. Oke DA, Adebola AP. Myocardial infarction managed in the Lagos University Teaching Hospital intensive care unit. Nig Post Grad Med J 1999; 6(2): 83- 85.
10. Danbauchi SS. Ischaemic heart disease and myocardial infarction in Ahmadu Bello University Teaching Hospital Zaria: a 10 year review (1985-1994) a short report. Cent Afr J. Med. 1996 ; 42(7): 209 -211.
11. Libby P. Prevention and treatment of atherosclerosis. In: Braunwald E, Fauci AS, Kasper DL Hauser AL, Longo DL, Jameson JL (eds). Harrison's Principles of Internal Medicine. 16th edition. MacGraw Hill, U.S.A., 2005: 1430 -1433.
12. World Health Organization. World Health report 2002. Reducing risks, promoting healthy life. Geneva: WHO 2002. www.who.int/whr/ 2002/en/index.html. Accessed Sept., 2009.
13. Akinkugbe OO. National expert committee. In Non communicable disease in Nigeria. Report of a national survey, federal ministry of health. Intec Printers Limited Ibadan , Nigeria 1997:12 -41.
14. Olatunbosun ST, Kaufman JS, Cooper RS, Bella AF. Hypertension in a black population : prevalence and biosocial determinants of high blood pressure in a group of urban Nigerians. J. Hum Hypertens 2000; 14: 249-257.
15. Kengne AP, Mbanya JC. Diabetes management in Africa-Challenges and opportunities. S.A.J. Diabet Vas Dis 2006; 3: 161 -167.

16. Mbanya JC, AP, Assah F. Diabetes care in Africa. Lancet 2006; 368 : 1628 - 1629.
17. Okesina AB, Oparinda DP, Akindoyin KA. Prevalence of some risk factors of coronary heart disease in a rural Nigerian population. East Afr Med J. 1999; 76:212-216.
18. Dahiru T, Jibo A, Hassan AA, Mande AT. Prevalence of diabetes in a semi urban community in northern Nigeria. Nig J. Med 2008 ; 17(4) 414-416.
19. Owoaje EE, Rotimi C, Kaufman JS, Tracy J, Cooper RS. Prevalence of adult diabetes in Ibadan, Nigeria. East Afr Med J. 1997;74 : 299 - 302.
20. Onitiri A, Sander M, Boyo AE. Serum lipids and lipoprotein in healthy Africans. Clin Chem Acta 1977; 811: 57- 61.
21. Ukoli FA, Bunker CH, Fabio A. Sex differences in serum lipids pattern and their correlates in a Nigerian urban elderly population. Nig Med J 1997;32(3) 85- 89.
22. Akpa MR, Agomuoh DI. Alasia DD. Lipid profile in healthy adult Nigerians in Port Harcourt Nigeria. Nig J Med 2006; 15(2) :137-140.
23. Muna WF. Cardiovascular disorders in Africa. World Health Stat Q. 1993:125-133.
24. Opadijo OG, Akande AA, Jimoh AK. Prevalence of coronary heart disease risk factors in Nigerians with systemic hypertension. Afr J. Med Sci. 2004; 33(2): 121- 125.
25. Taha A, Ball K. Smoking in Africa : the coming epidemic. World Smoking Health 1982; 7(2):25- 30.
26. Obot IS. The use of tobacco products among Nigerian adults: a general population survey. Drug Alcohol Depend 1990; 26(2) :203- 208.
27. Ele PU, Ibeh CC. Influence of family and social ties on cigarette smoking in young Nigerian females. Indian J Allergy Asthma Immunol 2001; 15(2): 97- 101.
28. Oyati AI, Danbauchi SS, Alhassan MA, Isa MS. Is the Incidence of acute myocardial infarction in Nigerians increasing? Annals of African Medicine 2005; 4(3):132-135.
29. Ebesunun MO, Agbedana EO, Taylor GO, Oladapo OO. Plasma lipoprotein(a), homocysteine and other cardiovascular risk factors in Nigerians with cardiovascular diseases. Appl Physiol Nutr Metab 2008; 32(2): 282- 289 .
30. Glew RH, Okolie H, Crossey M, Suberu O, Trujillo M, Pereyra M., Vanderjagt D.J. J Health Popul Nutr 2004; 22(4):341 -347.
31. Sani MU, Adamu B, Mijinyawa MS. et al. Ischaemic heart disease in Aminu Kano Teaching Hospital Kano, Nigeria: a 5 year review. Nig. J. Med 2006; 15(2): 128 -131.