

Coronary heart disease in sub-Saharan Africa: still rare, misdiagnosed or underdiagnosed?

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Abstract: Coronary heart disease (CHD) is the leading cause of death in developed countries, but it has generally been considered to be rare in sub-Saharan Africa (SSA). SSA is undergoing rapid epidemiological transition with an increasing prevalence of major cardiovascular risk factors and consequential cardiovascular diseases such as stroke. However, CHD including myocardial infarction has generally been considered to be rare despite this deterioration in the risk factors profile. There is an urgent need to raise awareness about CHD both in the general population and healthcare professionals while making available simple, inexpensive screening and diagnostic tools in sub-Saharan African countries.

Keywords: Sub-Saharan Africa (SSA); coronary heart disease (CHD); epidemiological transition; diagnosis

Submitted Jul 11, 2015. Accepted for publication Jul 22, 2015.

doi: 10.3978/j.issn.2223-3652.2015.08.01

View this article at: <http://dx.doi.org/10.3978/j.issn.2223-3652.2015.08.01>

Introduction

Coronary heart disease (CHD) is the most common cause of death in developed countries. Together with stroke, it accounts for more than 50% of all deaths (1,2). In sub-Saharan Africa (SSA), CHD has generally been considered to be rare despite the deteriorating trends in the cardiovascular risk factors profile of populations across SSA with an increasing prevalence of major cardiovascular risk factors (3).

The burden of cardiovascular risk factors and consequential cardiovascular diseases has witnessed an increase in SSA due the epidemiological transition SSA is going through (4,5). As a result, the burden of cardiovascular diseases such as stroke is rising in SSA and other low income countries (5). Stroke is a spectacular event that is easily recognizable clinically and usually shares the same risk factors with CHD including hypertension, smoking, diabetes and dyslipidemia. Stroke incidence has been suggested to be on a rise in this context of increasing prevalence of cardiovascular risk factors (6). On the contrary CHD is considered to be rare. Is it that CHD is actually still rare, underreported, misdiagnosed or underdiagnosed?

We illustrate in this commentary, a brief report of two cases of CHD presenting as acute myocardial infarction received in health care facilities in Cameroon.

Case 1: a 45-year old man with no significant past medical history presented on a weekend to the emergency department of a referral hospital in capital city of Cameroon, Yaoundé at about 1 am in the morning, 1 hour after acute onset of substernal chest pain. The attending physician at the emergency made the diagnosis of acute gastritis and prescribed analgesics, omeprazole (a proton pump inhibitor) and anti-spasmodics and sent the patient home. Electrocardiography and testing for markers of myocardial injury were not performed. Two days later, he went to see his primary care physician who suspected a myocardial infarction and sent him to a cardiologist because he feared a more serious condition. Evaluation by the cardiologist revealed an acute myocardial infarction with persistent ST segment elevation, elevated markers of myocardial necrosis and segmental wall motion abnormalities on echocardiography. Evaluation for cardiovascular risk factors revealed dyslipidemia and physical inactivity.

Case 2: a 56-year old patient with a history of longstanding hypertension presented to a health center in the capital city of Cameroon, Yaoundé for severe epigastric pain for which he was admitted and treated for acute gastritis. Two days later he developed shortness of breath prompting his transfer to the pneumology clinic where he spent 5 days. A chest X-ray done was normal. No electrocardiogram was performed. A repeat chest X-ray done for worsening shortness of breath showed cardiomegaly with pulmonary congestion. Following the findings on the repeat chest X-ray, an echocardiography was requested which showed an extensive anterior myocardial infarction with a large apical thrombus. The patient unfortunately died one day later after the diagnosis of myocardial infarction, probably due to a malignant ventricular arrhythmia.

Discussion

The total lack of clinical suspicion of myocardial infarction in the two case reports, and not performing a simple, cheap, readily available exam like the electrocardiogram could have serious implications in terms of morbidity and mortality. In most urban areas, the ECG could be readily available. A properly performed clinical review remains capital in suspecting acute coronary syndromes when presenting with acute chest pain or upper abdominal pain. With these cases, a clinical suspicion would have possibly changed the attitudes of the treating physicians with regards to requesting targeted exams like the ECG and cardiac enzymes, and referral of these patients to specialized management centers.

Reports have suggested a rising incidence of CHD in SSA. In contrast to previous belief, Kengne *et al.* highlighted that CHD was by no means rare in African populations from four selected countries in Africa (7). Lekoubou *et al.* reported an increase in stroke admission and mortality in an urban medical unit in SSA probably reflecting an increase in stroke incidence as a result of the epidemiological transition (6). The understanding of CHD has been limited by the absence of reliable health statistics, inadequacy of diagnostic means such as electrocardiographs, markers of myocardial injury, cardiac imaging, shortages of physicians. In the two cases presented, the diagnosis of myocardial infarction was never raised by the two physicians who first received the patients. How many more such cases go misdiagnosed? The answer will certainly be that perhaps a lot of patients. Is it that the attending physicians were not aware of risk factors and symptoms suggestive of myocardial

infarction leading to misdiagnosis? The likely response will be a low level of awareness leading to poor clinical suspicion and misdiagnosis. Resting 12-lead ECG is widely available, relatively inexpensive and can be very useful in patients presenting with chest pain at the emergency. Compared to developed countries, rarely in SSA do we see campaigns educating the public about the possibility of a chest pain, substernal or epigastric pain being suspicious of a myocardial infarction. In the above illustrations, the patients were considered to have gastrointestinal conditions.

Conclusions

These illustrations lead us to question whether CHD is still rare, misdiagnosed or underdiagnosed in SSA with the current epidemiological transition. There is a need for population based interventions to raise awareness about risk factors and symptoms of heart attack in SSA settings and making available simple diagnostic tools. These could go a long way to reduce cases of misdiagnosis as illustrated. It is an urgent imperative to empower primary and emergency care physicians to properly suspect and diagnose acute coronary events, especially in SSA with the current deteriorating cardiovascular disease risk factors profiles.

Acknowledgements

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Cite this article as: Nkoke C, Luchuo E. Coronary heart disease in sub-Saharan Africa: still rare, misdiagnosed or underdiagnosed? *Cardiovasc Diagn Ther* 2016;6(1):64-66. doi: 10.3978/j.issn.2223-3652.2015.08.01

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