

Pattern of congestive heart failure in a Kenyan paediatric population

JULIUS A OGENG'O, PATRICK M GATONGA, BEDA O OLABU, DIANA K NYAMWEYA, DENNIS ONG'ERA

Abstract

Background: Heart failure in children is a common cause of morbidity and mortality, with high socio-economic burden. Its pattern varies between countries but reports from Africa are few. The data are important to inform management and prevention strategies.

Objective: To describe the pattern of congestive heart failure in a Kenyan paediatric population.

Methods: This was a retrospective study done at Kenyatta National Hospital, Nairobi Kenya. Records of patients aged 12 years and younger admitted with a diagnosis of heart failure between January 2006 and December 2010 were examined for mode of diagnosis, age, gender, cause, treatment and outcome. Data were analysed using the Statistical Programme for Social Scientists version 16.0 for windows, and presented in tables, bar and pie charts.

Results: One hundred and fifty-eight cases (91 male, 67 female) patients' records were analysed. The mean age was 4.7 years, with a peak at 1–3 years. The male:female ratio was 1.4:1. All the cases were in New York Heart Association (NYHA) class II–IV. Evaluation of infants was based on the classification proposed by Ross *et al.* (1992). Diagnosis was made based on symptoms and signs combined with echocardiography (echo) and electrocardiography (ECG) (38%); echo alone (12.7%); ECG, echo and chest X-ray (CXR) (11.4%); and ECG alone (10.8%). The underlying cause was established on the basis of symptoms, signs, blood tests, CXR, echo and ECG results. Common causes were infection (22.8%), anaemia (17.1%), rheumatic heart disease (14.6%), congenital heart disease (13.3%), cardiomyopathy (7.6%), tuberculosis and human immunodeficiency virus (6.9% each); 77.9% of patients recovered, 13.9% after successful surgery, and 7.6% died.

Conclusion: Congestive heart failure is not uncommon in the Kenyan paediatric population. It occurs mainly before five years of age, and affects boys more than girls. The majority are due to infection, anaemia, and rheumatic and congenital heart diseases. This differs from those in developed countries, where congenital heart disease and cardiomyopathy predominate. The majority of children usually recover. Prudent control of infection and correction of anaemia are recommended.

Keywords: heart failure, infections, paediatric, Kenya

Submitted 27/6/11, accepted 18/3/13

Cardiovasc J Afr 2013; 24: 117–120

www.cvja.co.za

DOI: 10.5830/CVJA-2013-015

Congestive heart failure in a paediatric population is a common cause of morbidity and mortality and is a serious public health concern, with tremendous socio-economic impact.^{1,2} Its pattern varies between and within countries.^{3,5} In sub-Saharan Africa, studies mainly from Nigeria reveal that it accounts for 5.8–9.0% of emergency admissions to paediatric units.^{2,4,5} These causes vary between developed and developing countries, age and geographical location.^{6,7} These data are important in diagnosis, treatment, prognosis, control and prevention. Reports from eastern Africa are, however, scarce and altogether absent for Kenya. This study therefore investigated the pattern of congestive heart failure in a black Kenyan paediatric population.

Methods

This was a retrospective study at Kenyatta National Hospital (KNH), Nairobi, Kenya, which is a 1 800-bed capacity teaching and eastern African regional referral centre. It receives about 30 000 paediatric in-patients a year, mainly from black Kenyans of middle to lower socio-economic class. This hospital has four paediatric cardiologists and 40 paediatric cardiology beds. Ethical approval for the study was granted by KNH/University of Nairobi Ethics and Research committee.

Records of patients aged 12 years and younger who were admitted to the hospital with heart failure according to New York Heart Association (NYHA) classification II–IV between January 2006 and December 2010 were retrieved from the hospital registry. In infants, diagnosis and classification was based on criteria proposed by Ross *et al.* (1992).⁸ Patients were divided into male and female gender. Each gender category was subsequently divided into infants (one year and below), and four age groups of three years each, starting at one year.

Subsequently, the records were examined for cause and sub-cause of heart failure based on clinical, echo, ECG, CXR and laboratory findings. The causes were divided into six categories, namely congenital heart disease (CHD), rheumatic heart disease (RHD), anaemia, infections, cardiomyopathy, and other. In the categories where there were more than 25 patients, they were further subdivided according to specific cause. Those cases in whom some data on the parameters above were missing were excluded from the study.

Data obtained were analysed using Statistical Programme for Social Scientists (SPSS) version 16.0 for windows, and presented in tables, bar and pie charts.

Results

One hundred and sixty-five cases were retrieved. Seven were excluded from the study: four in whom age, and three in whom

Department of Human Anatomy, University of Nairobi, Nairobi, Kenya

JULIUS A OGENG'O, BSc, MB ChB, PhD

PATRICK M GATONGA, BSc

BEDA O OLABU, BSc, MB ChB, otienobeda@gmail.com

DIANA K NYAMWEYA, MB ChB

DENNIS ONG'ERA, BSc, MB ChB