International Journal of Cardiology 177 (2014) 794–799

Contents lists available at ScienceDirect

International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard

Review

Addressing discrepancies: Personal experience of a cardiac mission programme in Africa

Peter McKavanagh [a,b,*], Karen Booth [a,b], Laura Blair [b,c], Graham McNeilly [a,b], Bharathi Varadarajan [a,b], Onyekwelu Nzewi [a,b]

[a] Royal Victoria Hospital, Belfast, United Kingdom
[b] Save a Heart Charity, Belfast, United Kingdom
[c] 352 Healthcare, Belfast, United Kingdom

ARTICLE INFO

Article history:
Received 24 September 2014
Accepted 27 September 2014
Available online 5 October 2014

Keywords:
Cardiac missions
Cardiac surgery
Africa

ABSTRACT

The worldwide incidence of cardiovascular disease (CVD) is increasing, reflecting a combination of ongoing infective diseases and a rapid rise in traditional 'western' risk factors. It is estimated that in the next 20 years that CVD be the leading cause of death in developing nations. There are high incidences of rheumatic heart disease, coronary artery disease, cardiomyopathies, uncorrected congenital heart disease and human immunodeficiency virus (HIV) associated disease in many low-income countries. Such high levels combined with a lack of diagnostic tests and therapeutic options means mortality and morbidity rates are high. A number of charities and organizations have tried to address the discrepancy of cardiac care within developing areas although the needs remain great. However there is no one global cardiac organization that coordinates such humanitarian work. The challenges of missionary work include the need for appropriate facilities, financial constraints of clinical consumables, and lack of education of local healthcare staff, making the move away from the mission model difficult. The strategy for delivery of care in developing countries should be long term educational and technical support, so that local case volumes increase. However it must be realized that there are many different levels of local services within developing nations with different health and educational needs, including some countries with very high facilities and skills levels, yet high case loads. This paper highlights the personal experience of our organization and the types of diseases encountered in developing countries.

© 2014 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Cardiovascular disease (CVD) is the leading worldwide cause of death, accounting for 3 in every 10 deaths [1]. It has many facets including coronary artery disease (CAD), strokes, rheumatic heart disease (RHD), cardiomyopathies, and congenital heart disease (CHD) as well as other heart diseases. Although traditionally seen as a Western disease, the incidence of CVD is rising in developing countries [2] with CAD in particular coming to the fore [3,4]. Projections of burden of disease and mortality suggest that by the year 2030, CVD will be the leading cause of death in low-income countries in Africa, overtaking Autoimmune Deficiency Syndrome (AIDS) [5].

The rise of CVD in developing countries is largely due to lack of control of risk factors such as hypertension, diabetes and high levels of infections giving rise to Chagas and RHD, and lack of diagnosis of congenital conditions [6]. There is great inequality between developing and developed countries in the wide range of diagnostic and therapeutic options available [7]. A number of charities and organizations have tried to address the discrepancy of cardiac care within developing areas [8–10] although the needs remain great.

This paper illustrates the range of adult CVD experienced on African cardiac missions. It highlights the types of disease that exists and the great need for skilled specialist care with special mention of developing cardiac surgery in Nigeria. It aims to promote the concept of humanitarian work and emphasize that with supported infrastructure all cardiology skills are potentially transferable to poorer areas of the world. It will focus on the types of disease seen and highlight personal experience.

1.1. Rheumatic heart disease

Acute rheumatic fever (ARF) and rheumatic heart disease (RHD) are major causes of premature death amongst young people in developing countries [11], with RHD being the leading worldwide cause of acquired heart disease in the young [12]. Although valvular damage can occur after a single episode of ARF, most RHD results from cumulative exposure from recurrent episodes of ARF [13]. RHD is conservatively estimated to affect 36 million people worldwide, the majority of whom are living in developing countries [14], with sub-Sahara Africa and central Asia particularly affected [15,16].

* Corresponding author at: Royal Victoria Hospital, Belfast, United Kingdom.
E-mail address: mckavanagh@doctors.net.uk (P. McKavanagh).

http://dx.doi.org/10.1016/j.ijcard.2014.09.180
0167-5273/© 2014 Elsevier Ireland Ltd. All rights reserved.

ARF is caused by group A streptococcus, which causes an autoimmune reaction resulting in valvular damage, and thus RHD [17]. Prevention of ARF involves improving social determinants, particularly living conditions and household crowding [18,19], with the aim of preventing streptococcal infection. Secondary prevention involves long term intramuscular prophylaxis injections of benzathine penicillin G against repeated or chronic ARF attacks [20]. Tertiary treatment generally involves structural intervention to valve defects, although such management options are not widely available.

Trying to clinically diagnosis RHD has a poor sensitivity [21], with the importance of echocardiography for diagnosis and clinical stratification well established [22,23]. Indeed the use of echocardiography has shown that the prevalence of subclinical disease may be much higher than previously thought [24]. Lately there has been much debate about what constitutes early RHD, with recent World Heart Federation work standardizing diagnostic criteria [25]. To date there is no clinical data about what influence these guidelines have on treatment implementation and prognosis [26]. Although the use of echocardiography has revolutionized diagnosis and management, there is still has some unanswered questions in regards screening, such as who, at what age, and how often [27].

Our experience has shown that advanced disease is common (Fig. 1), and patients are often misdiagnosed. Long term follow-up with local cardiologists is essential for monitoring of disease progression, and after valve intervention.

1.2. Congenital heart disease

The worldwide incidence of CHD is 8 per 1000 live births [28] although it is probably underestimated in areas where diagnostic and epidemiological skills may be limited. In developed countries over 90% of CHD patients are now expected to survive to adulthood [29]. However 90% of more than these 1,000,000 children born worldwide each year receive suboptimal care or have no access to care [30], meaning those in developing nations have dramatically different morbidity and mortality [10].

The exact incidence individual types of CHB in developing nations is unknown, but numerous authors have produced work suggesting that ventricular septal defect, Tetralogy of Fallot, patent ductus arteriousus, atrioventricular cushion defect, and isolated atrial septal defect are amongst the commonest [31–33]. Although the increased availability of echocardiography means that there is increased awareness of CHB, most patients have still no access to surgical correction. Consequently children with CHB in many parts of Africa will die in early teens or adulthood from cyanosis, pulmonary hypertension and cardiac failure [7]. Sometimes the only treatment option available to patients is to travel abroad, although raising funds for this delays treatment and results in a worse prognosis [34].

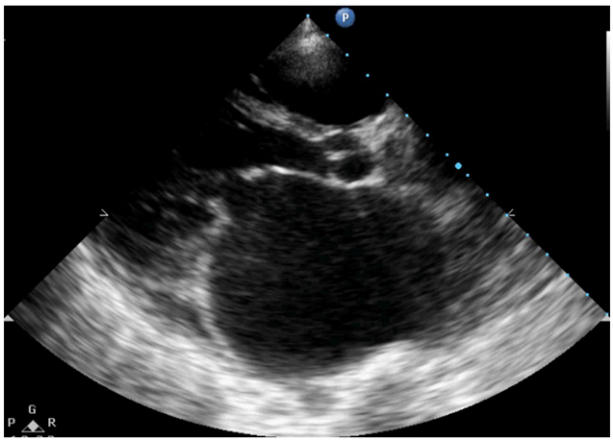

Fig. 1. Rheumatic mitral valvular disease causing severe left atrial enlargement.

Our experience has shown that it is not unusual to find very advanced pathology (Fig. 2), and it is important to know what is acceptable to intervene on and what is contraindicated due to disease progression. It is also important to be aware of congenital disease as a reason when patients in middle age present with ventricular failure (Fig. 3).

1.3. Cardiomyopathies

It has been suggested that cardiomyopathies are the greatest challenge of all the cardiovascular diseases in Africa because of their prevalence in areas affected by famine and pestilence [35]. Specifically cardiomyopathies endemic to the tropics include Chagas and endomyocardial fibrosis (EMF). Chagas disease was first described in 1909 by Carlos Chagas [36]. The World Health Organization estimates that 16–18 million people are currently infected and 90 million are at risk of infection [37] mainly on the American Continent. It is caused by a parasite, *Trypanosoma cruzi*, transmission of which to humans is by blood-sucking triatomine bugs, via blood transfusion, and mother-to-child-transmission [38]. Around 30% of patients present with cardiac and digestive complications, in the chronic phase of the disease. The main cardiac complication is dilated cardiomyopathy which can give rise to heart failure, ventricular arrhythmias, heart blocks, thromboembolic phenomena, and sudden death [39]. Management involves medical management of dilated left ventricle; pacemakers and implantable cardioverter–defibrillators for rhythm disturbance; cardiac transplant for end stage disease; and antiparasitic agents such as benznidazole. Unfortunately patients with Chagas often have a worse prognosis compared to other cardiomyopathies [40].

EMF is a condition that is not well understood. It is thought to be the most common type of restrictive cardiomyopathy worldwide [41] with the prevalence in endemic areas having been quoted as 9% [42]. Although the aetiology of EMF remains unknown, several hypotheses have been proposed including eosinophil cardiotoxicity, infection with schistosomiasis, filariasis, malaria, or helminths [43], as well as dietary, genetic and autoimmune factors. Clinically it is characterized by the development of restrictive cardiomyopathy causing ventricular stiffness, atrioventricular valvular regurgitation, atrial enlargement, and atrial arrhythmias. It most commonly affects the right side of the heart or bilateral, but rarely the left sided alone [44]. Ascites with no or minimal peripheral oedema is a classical feature, with the ascites being an exudate in 75% of cases [45]. There is no specific test for EMF, and diagnosis relies heavily on echocardiography and more recently magnetic resonance imaging findings [46,47]. There is no specific treatment for EMF, and management is medical and device therapy based for heart failure and arrhythmias, and palliative surgical intervention [48].

Recently peripartum cardiomyopathy (PPCM) has been defined by the European Society of Cardiology Working Group on Peripartum Cardiomyopathy as an idiopathic cardiomyopathy presenting with heart failure secondary to left ventricular dysfunction towards the end of pregnancy or in the months following delivery, where no other cause of heart failure is found [49]. The presence of PPCM in African population is higher than in other populations with an incidence previously quoted as high 1% in certain parts of Nigeria [50]. The cause remains unknown. The clinical features are similar to that of all dilated cardiomyopathies (DCM), although the rate of spontaneous recovery of ventricular function and prognosis is higher than idiopathic DCM [51].

Other causes of DCM seen in developing countries have been cited as untreated hypertension, infection and myocarditis, autoimmune mechanisms, iron overload and other metabolic factors, genetic factors, and alcohol and nutritional deficiency [44]. In addition it has been suggested that the incidence hypertropic cardiomyopathy is likely to be evenly distributed amongst different populations worldwide [52] whilst arrhythmogenic right ventricular cardiomyopathy has had increasing

Download English Version:

https://daneshyari.com/en/article/5969509

Download Persian Version:

https://daneshyari.com/article/5969509

Daneshyari.com