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# Cardiology

An International Perspective

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EDITED BY

E. I. CHAZOV

V. N. SMIRNOV • R. G. OGANOV

Volume 2

# Cardiology

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*An International Perspective*

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# A PROSPECTIVE STUDY OF 100 PATIENTS PRESENTING WITH CLINICAL FEATURES OF OBSCURE MYOCARDIAL FAILURE

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## INTRODUCTION

Congestive cardiomyopathy is a common cause of heart disease in our population particularly in the Bantu. Clinically it may be difficult to distinguish from known causes of heart muscle disease such as ischaemic heart disease, myocarditis, sarcoid, acute rheumatic carditis and Beri-Beri heart disease and the distinction may have important therapeutic implications. The aetiology is obscure but malnutrition, alcohol, healed virus myocarditis and previous hypertension have been suggested as aetiological factors. The prognosis is generally poor but the factors influencing survival have not been prospectively studied.

In this study we have attempted to determine the incidence, aetiological factors and prognosis in 100 consecutive patients presenting with myocardial failure of obscure cause.

## METHODS

Between 1976 and 1980, 100 consecutive cases presenting with the features of obscure myocardial failure were seen. All had a detailed history taken, physical examination, ECG, chest X-ray, M-mode echocardiogram and cardiac catheterisation performed. Right and left haemodynamic studies, left ventricular and coronary angiography and right ventricular endocardial biopsy were performed.

Follow-up studies were obtained in 43 of 89 patients proven to have congestive cardiomyopathy.

## RESULTS

4 patients were found to have angiographic features of coronary artery disease; 3 had evidence of inflammatory heart muscle disease, chronic or healed in 2, acute in 1 on biopsy. One case each of sarcoid and amyloid heart disease were identified on biopsy, 2 cases were regarded as having Beri-Beri.

The remaining 89 patients with dilated cardiomyopathy of unknown cause form the basis of this study. There were 56 males and 33 females; 38 were of European extraction 31 were Bantu and 20 were of mixed race. Their age ranged from 11-70 years.

### Aetiologic Features

A history of heavy alcohol consumption was noted in 33 and of moderate consumption in 14. Ten of the 34 female patients developed the disease during or within 3 months of pregnancy. A history of systemic hypertension requiring treatment or a diastolic pressure of 120 or over on the initial examination were noted in 10 cases and a history of preceding flu-like illness was present in 11. Familial cardiomyopathy was noted in one. No aetiological factors were noted in 16.

### Presenting Manifestations

Seventy-eight patients presented with the features of congestive cardiac failure. Serious ventricular arrhythmia was the presenting feature in 4, systemic embolism in 4 and 3 patients presented in cardiogenic shock.

### Duration of the Disease

Fifty patients had been symptomatic for longer than 6 months and several for many years. In 37 the duration of symptoms was less than 6 months and in 9 of these one month or less. The duration was unknown in two.

### The Electrocardiogram

Sinus rhythm was present in 72 atrial fibrillation paroxysmal or established was noted in 15. 2nd degree AV block in 1 and atrial tachycardia with block in 1. Frequent VPB's on the routine 12 lead ECG was seen in 24 cases and in 4 of these episodes of ventricular tachycardia occurred.

The QRS morphology was that of left ventricular hypertrophy in 42. Low voltage was present in 9, LBBB in 26, RBBB in 5, W.P.W. in 1 and patterns compatible with infarction were noted in 5. A normal QRS morphology was noted in 5.

Repolarisation changes were present in all.

The Echocardiogram characteristically showed dilated, poorly contractile left ventricular chambers with normal left ventricular wall thickness and septal to posterior wall thickness ratio but with a reduced ratio of wall thickness to cavity diameter. The left atrium was enlarged in 50 and normal in 39. A small to moderate pericardial effusion was noted in 14.

The Haemodynamic Data confirmed the presence of high filling pressures, reduced cardiac indices, large end-diastolic volumes with uniformly poor wall motion and reduced ejection fractions. Functional mitral insufficiency was seen in 54; a mural thrombus was seen at the apex in 6.

Myocardial Biopsy: non-specific features of hypertrophy and dilatation were universally seen. Variation in fibre size and interstitial oedema were additional features commonly present.

Course and Progress: Follow-up data were available in 43 patients; 26 survived 1 year after the study and 17 died within a year of study. Compared with survivors those dying within a year showed smaller ejection fractions (Figure 1), cardiac indices and ratio of wall thickness to cavity size (Figure 2) but higher LVEDP and larger LVEDV (Figure 3). They also had a higher frequency of ventricular premature beats on the 12 lead ECG. Of these differences only the cardiac index and ratio of wall thickness to end-diastolic diameter reached statistical significance.

## DISCUSSION

Considering that Bantu patients form only a small (20%) proportion of total patients seen at our Institution, the 40% incidence of Bantu patients in our series indicates a higher incidence of the disease in this race group and is compatible with previous clinical impressions that cardiomyopathy is a major cause of heart disease in the black population.

The biopsy results while identifying those patients with specific heart muscle disease in a small proportion of patients, gave no clue as to the cause of the disease in the vast majority. Perhaps the absence of any striking structural changes suggest a metabolic defect as the most likely cause. It is equally important to note, however,

that the biopsy findings fail to distinguish truly idiopathic congestive cardiomyopathy (if indeed such an entity exists) from the heart failure caused by known agents such as alcohol, hypertension and thiamine deficiency.

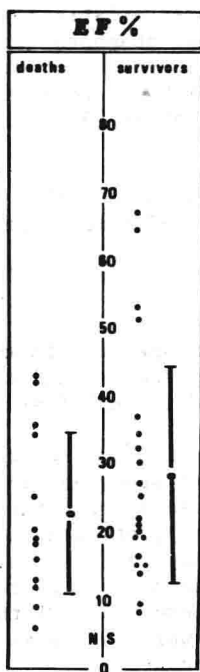


Fig. 1. Shows the ejection fraction in 17 patients dying within a year compared with 26 survivors. The mean EF is lower (22%) in those dying than in those surviving (28%) but the difference is not significant.

A history of heavy alcohol consumption and evidence of hypertension were common in this series and the disease appeared to be related to pregnancy or the puerperium in one third of the female patients. Clearly the role of alcohol, hypertension and nutritional factors need to be more accurately defined, in the genesis of idiopathic cardiomyopathy.

The prognosis of the condition is generally poor, 40% of the 43 patients who could be followed were dead within a year of pre-