

Letters to the Editor

Sir,

I wish to comment on the article by Olowonyo *et al*¹ which appeared in the Journal recently. The study, using electrocardiography (ECG), attempted to unravel some of the causes of sudden death in patients with kwashiorkor. The crucial finding was the significantly smaller QRS amplitudes in all the leads in patients with kwashiorkor than in the controls. From this finding, the authors concluded that myocardial thinning, metabolic derangements, decreased metabolic rates, pericardial effusion and subcutaneous oedema were possible underlying causes of the ECG abnormality. Unfortunately, the authors failed to clarify the respective contribution by these factors to this ECG finding. For instance, were there any signs, such as distant or muffled heart sounds, or a 'water-bottle' configuration of the heart in any of their patients, to suggest the presence of pericardial effusion?

The heart in kwashiorkor is described as thin-walled, pale and flabby with the ventricular chambers appearing either small or dilated.² Bearing this description in mind, were autopsies performed on any of the 29 deaths in order to confirm that myocardial thinning existed so as to relate this to the generalized low QRS amplitudes? The role of subcutaneous oedema in the pathogenesis of low QRS amplitude in kwashiorkor is long overdue for a reevaluation, as that study on this topic, cited by the authors, was carried out almost forty years ago. It could thus have been informative, if the ECG had been performed on non-oedematous malnourished patients, for comparison. Electrophysiologically, fluid is a poor conductor of electrical impulses and in any diseased state, such as kwashiorkor, in which subcutaneous oedema is

the rule, generalized low QRS complexes are to be expected.

Finally, a close examination to Table 1 in the article shows that some of the patients had tachycardia, while others had prolonged P-R interval. Could it be that some of these patients had some form of arrhythmia, while the others had a first degree heart block? If this is so, was there a past history of measles in the patients with these ECG abnormalities? Measles is a known antecedent illness in a number of patients with protein-energy-malnutrition³ and such ECG changes, including low QRS complexes, could be attributed to measles, even after clinical recovery.^{4 5}

References

- 1 Olowonyo MT, Ogunkunle OO, Akinbami FO and Jaiyesimi F. The prognostic significance of the QRS amplitudes of electrocardiogram in kwashiorkor. *Nig J Paediatr* 1993; **20**: 13-6.
- 2 Caddell JL. Diseases of the myocardium. In: Jelliffe DB and Stanfield JP eds. Diseases of children in the Subtropics and Tropics. London. Edward Arnold (publishers) LTd, 1978: 408-15.
- 3 Morley DC. Measles in Nigeria. *Am J Dis Child* 1962; **103**: 130-3.
- 4 Olowu AO and Taiwo O. Electrocardiographic changes in measles. *Ann Trop Paediatr* 1990; **10**: 109-16.
- 5 Olowu AO and Taiwo O. Electrocardiographic changes after recovery from measles. *Trop Doctor* 1990; **20**: 123-6.

AO Olowu
Senior Lecturer
Department of Paediatrics
Obafemi Awolowo College of Health Sciences
Sagamu.

Sir,

The article by Olowu¹ on heart failure in Sagamu, provides an additional evidence that non-cardiac disorders such as anaemia and pneumonia, are important causes of heart failure in children. By contrast to the finding that these two conditions accounted for over 80 percent of all the cases of failure in their series, it has been shown that structural cardiac defects were the leading causes of failure in infancy and early childhood in the studies undertaken in Ibadan.²⁻³ It is possible however, that the prominence of non-cardiac diseases in Sagamu was due to the fact that many children with heart diseases in the tropics, especially those with severe congenital malformations, do not have access to medical care; it may also be due to the several different definitions of heart failure by workers which make comparison of such data as incidence, difficult to assess.

The definition of heart failure, based on the presence of tachypnoea, tachycardia, cardiomegaly and hepatomegaly, cannot easily distinguish between compensated and decompensated children with pneumonia and anaemia. This is because a number of children with pneumonia and/or anaemia may have these signs of heart failure as a result of compensatory mechanisms that accompany the associated increased cardio-respiratory burden.⁴⁻⁵ Another problem in the diagnosis of heart failure is that hepatomegaly is a common finding in healthy children,⁶ the apex beat is perhaps, of limited value in assessing cardiac size,⁷ especially in ill children. It was because of these considerations that we adopted a strict set of criteria for the diagnosis of heart failure in our recent study.³ These criteria included the presence of cardiomegaly (CTR \geq 0.6), hepatomegaly (\geq 4cm) and the receding of their respective sizes following anti-failure treatment. Furthermore, at least two independent observers

agreed on the diagnosis of failure in each patient.

Two important findings emerged from our series which supported the argument that when clear-cut diagnostic criteria for failure are used, the prevalence of non-cardiac disorders in the aetiology of failure is much lower than it is now believed. Firstly, intrinsic cardiac diseases accounted for failure in 35 percent of our cases; the corresponding figures in the study by Olowu¹ and that of another study by Jaiyesimi,⁴ were eight and four percent, respectively. Secondly, in comparing our data with the total admissions for pneumonia and anaemia, respectively, over the same period of study, the prevalence of heart failure was low, being seven percent for pneumonia and six percent for anaemia.

References

- 1 Olowu AO. Studies on heart failure in Sagamu. *Nig J Paediatr* 1993; **20**: 29-34.
- 2 Jaiyesimi F. Heart failure in infancy and childhood. *Medicine Digest* 1981; **6**: 13-22.
- 3 Bondi F and Jaiyesimi F. Heart failure in an emergency room setting. *Nig J Paediatr* 1990; **17**: 1-6.
- 4 Jaiyesimi F. Cardiac failure in children with anaemia or bronchopneumonia: problems in its clinical diagnosis and management. *Tropical Cardiol* 1978; **4**: 193-7.
- 5 Ogunkunle OO and Jaiyesimi F. Cardiovascular findings in children with sickle-cell disease. *Nig J Paediatr* 1992; **19**: 37-43.
- 6 Akinbami FO and Akindele JA. Liver size in childhood. *Nig J Paediatr* 1992; **19**: 89-92.
- 7 O'Neill TW, Barry M, Smith M and Graham IM. Diagnostic value of the apex beat. *Lancet* 1989; **1**: 410-11.

FS Bondi
Senior Lecturer & Consultant Paediatrician
Department of Paediatrics
Bayero University
Kano.