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PROSPECTIVE CROSS-SECTIONAL STUDY ON THE CLINICAL PROFILE AND MYOCARDIAL FUNCTION OF SEVERELY AND MODERATELY MALNOURISHED CHILDREN 2 MONTHS TO 18 YEARS OLD IN PHILIPPINE CHILDREN’S MEDICAL CENTRE (PCMC)

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**Background**

Malnutrition in children produces visceral protein loss and consequent cardiac atrophy. There are conflicting studies if this cardiac atrophy results in myocardial dysfunction.

This study aims to determine the prevalence of myocardial dysfunction and describe the demographic, clinical, electrolyte changes, electrocardiographic and structural and myocardial function in severely and moderately malnourished children.

**Methods**

This is a prospective cross-sectional study conducted on severely and moderately malnourished children 2 months to 18 years old in Philippine Children’s Medical Centre. Serum potassium, magnesium, ionised calcium and phosphorus determination, 2D echocardiography and electrocardiogram (ECG) were done.

**Results**

73 subjects (43 moderately and 30 severely malnourished) were recruited. Majority had neurologic diseases (n=18, 25%), followed by tuberculosis (n=13, 18%). 2 had pneumonia, 2 had diarrhoea.

Hypokalemia was found in 5/30 or 16% severely malnourished (Potassium 2.21–2.96 mmol/L) and 4/42 or 9% moderately malnourished (Potassium 2.5–2.89 mmol/L) (p>0.05). Only one marasmic child had hypomagnesemia (0.5 mmol/L). Ionised calcium and phosphorus were normal. Both groups demonstrated prolonged QT interval, short and prolonged PR interval, prolonged QRS duration with no statistical significance. The most common ECG finding is short PR interval in moderately (n=29/42 or 69%) and severely malnourished (n=18/29 or 62%) subjects. (p>0.05)

The systolic and diastolic functions were normal in both the severely and moderately malnourished. Although the left ventricular mass (LVM) was low with no statistical significance between the two groups, the LVM index remained to be normal. The presence of pericardial effusion in severely malnourished (n=5/29, 17%) compared with only 1 in moderately malnourished had a statistical significance of P.

**Conclusions**

Hypokalemia, hypomagnesemia and shortened PR interval are common in malnutrition. Hence, vigilant monitoring of electrolytes and ECG should be done in all malnourished children. Even if the left ventricular mass was reduced in malnutrition, the left ventricular mass index remained to be normal. No myocardial dysfunction was found in the moderately and severely malnourished children. This suggests a possible compensatory mechanism of a malnourished heart.

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MAJOR GENETIC ALTERATIONS IN SPORADIC COLORECTAL CANCER IN THE CHINESE POPULATION

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**Background**

Sporadic colorectal cancer accounts for 80% of all colorectal cancer. The 2 major mechanisms of genetic alteration are chromosomal instability (CIN) and microsatellite instability (MSI). The prevalence of KRAS, NRAS, BRAF and CTNNB1 mutations in western population was 42.4%, 5.1%, 15.2% and 1.1%. BRAF mutations in Chinese population were much lower (3.1%). RNF43 mutation was recently reported with a high prevalence of 18%. It was found mutually exclusive with APC inactivation and was associated with MSI-H tumours.

In this study, the prevalence of APC, KRAS, NRAS, BRAF, CTNNB1 and RNF43 mutations in Chinese sporadic colorectal cancer patients was confirmed by next generation sequencing (NGS). The association of RNF43 mutation with APC, BRAF mutations and MSI status of tumours, was analysed. Clinical-pathological correlation was evaluated.

**Methods**

NGS was used to investigate the prevalence of major mutations in 55 subject samples. Data analysis was done by Statistical Package of the Social Sciences (SPSS) statistics. Clinical-pathological correlation was analysed by Cox regression and Kaplan-Meier estimate.