

MAGNESIUM LEVEL IN CHILDREN WITH PROTEIN ENERGY MALNUTRITION.

Omer Karrar*, M Illahi*,

Mohamed Ibrahim A Omer** and Mabyoa Mustafa***.

Departments of Biochemistry* and Paediatrics and Child Health**, University of Khartoum and Department of Paediatrics, Soba University Hospital***.

Abstract Plasma magnesium level was estimated in 93 malnourished children (6 - 12 months old) using titan yellow method. The mean of the obtained values was calculated to 1.75 mEq/L with a standard deviation of 0.63. The result was within the observed values in general population. Therefore, it was suggested that the excitability and behavioural changes seen in kwashiorkor were not due to magnesium deficiency.

Key words Magnesium; Child; Malnutrition.

INTRODUCTION

In view of the poor nutrition, lack of appetite and gastrointestinal disturbance commonly occurring in children with protein energy malnutrition, we intended to investigate magnesium levels in the sera of such children. The objective of this study was to find out whether a superimposed magnesium deficiency could be a contributory factor to the symptoms of kwashiorkor.

MATERIAL AND METHODS

Subjects were chosen from children (6 - 12 months old) admitted to the paediatrics wards with clinically established protein energy malnutrition. Venous blood samples were collected, after an over-night fast, in oxalated bottles. The blood samples were centrifuged and the clear plasma samples were collected in clean bottles. The magnesium content of these samples was then estimated by Titan yellow method as described by Henry¹.

RESULTS AND DISCUSSION

The results of the magnesium content of the 93 plasma samples investigated are shown in Table I.

Table I plasma magnesium concentration

Magnesium level*	0 - 1	1 - 1.5	1.6-
No of cases	6	31	56
% of total	7	33	60

* Values are expressed in mEq/L of plasma.

It can be seen from this table that 56 (60%) of the subjects had magnesium levels of 1.6 mEq/L or more, 31 (33%) had levels in the range of 1.0 - 1.5 mEq/L and 6 (7%) had levels less than 1.0 mEq/L. The mean for the whole population investigated was 1.75 mEq/L with a standard deviation of (0.63). Since the normal human plasma magnesium level is 1.6 - 2.0 mEq/L the incidence of the magnesium deficiency in this series is 7% with 33% having slightly subnormal levels. These findings are not significantly different from those we obtained from a group of apparently healthy adult subjects². It can be concluded from these findings that magnesium deficiency is not a common feature of protein energy malnutrition. The excitability and behavioural changes which are often observed in kwashiorkor as well as in magnesium deficiency³ cannot be attributed to magnesium deficiency in the former condition.

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