Low Plasma Ghrelin Levels in Children with Severe Protein Energy Malnutrition

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OBJECTIVES

Background: Children with primary protein energy malnutrition (PEM) have significant loss of appetite which makes their nutritional rehabilitation difficult. Trials in patients with anorexia nervosa and cancer cachexia (1,2) have shown short term efficacy of supplementing ghrelin to increase appetite.

Objectives: To ascertain plasma ghrelin levels in children with PEM and to see for any change in ghrelin hormone levels with progression in severity of malnutrition.

METHODS

A cross-sectional observational study was conducted on 78 children (6 – 60 months) in hospital setting. The study population was divided into 3 groups, 36 children with severe PEM, 23 children with mild to moderate PEM and 19 healthy controls and their median plasma ghrelin levels were compared. Children with concomitant chronic systemic illnesses causing malnutrition were excluded from the study. Plasma fasting ghrelin levels were measured using radioimmunoassay.

RESULTS

Median serum ghrelin level in severe PEM group was 1.942 ng/ml (IQR: 0.064, 9.506), in mild to moderate PEM was 17.662 ng/ml (IQR: 1.658, 40.129) and in control group was 17.525 ng/ml (IQR: 0.626, 27.361). The median ghrelin levels were significantly low (p value, 0.027) in severe PEM group when compared to mild to moderate PEM group.

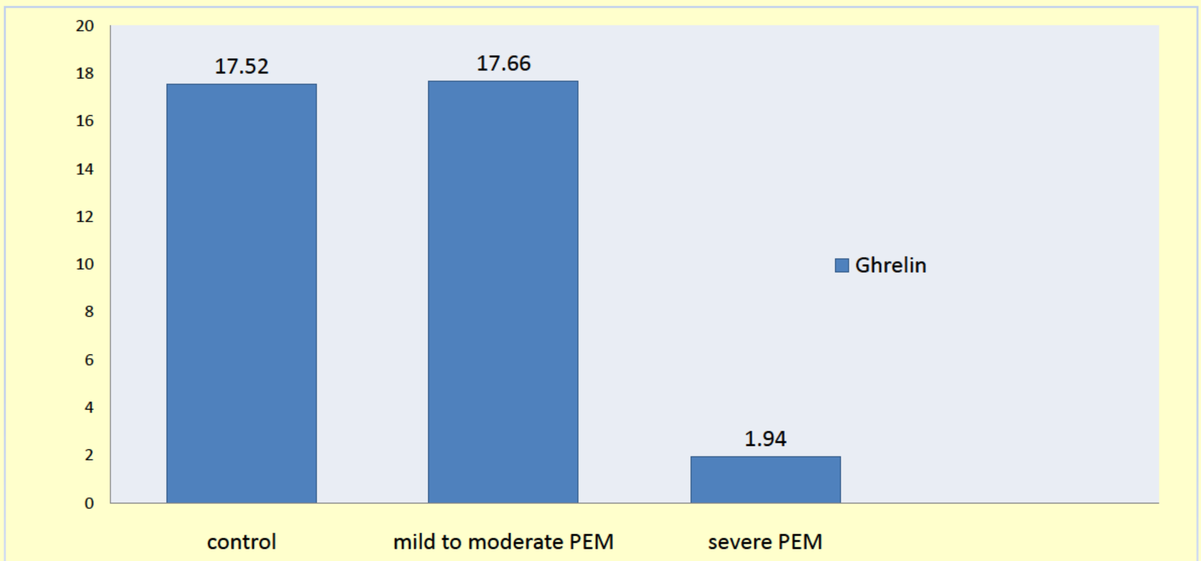

Figure 1. Median value of plasma ghrelin among the study groups. (X axis – Different groups in study population, Y axis – Median plasma ghrelin level (ng/ml)

CONCLUSIONS

The plasma ghrelin levels are reduced in children with severe PEM when compared to mild to moderate PEM. This is attributed to failure of physiological adaptation to increase ghrelin hormone secretion and gastric mucosal atrophy associated with worsening PEM . Contrary to previously reported physiological increase in plasma ghrelin levels across all groups/grades of PEM (3,4), plasma ghrelin levels were significantly reduced in children having severe PEM in our study. Trials with ghrelin supplementation need to be conducted to see if this improves appetite and outcome in children with severe PEM.

REFERENCES

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Miscellaneous

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