

Pancreatic size in protein energy malnutrition: a predictor of nutritional recovery.

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BACKGROUND:: Pancreatic exocrine dysfunction has been frequently recorded in protein energy malnutrition (PEM) because the pancreas requires optimal nutrition for enzyme synthesis. This pancreatic enzyme insufficiency may play a role in the continuation of PEM. **OBJECTIVE::** This study was designed to assess the pancreatic head size and exocrine pancreatic functions, namely serum amylase and lipase, in PEM and its subtypes and correlate any defect present with the various clinical and laboratory data of the PEM patients with special emphasis on the effect of nutritional rehabilitation. **PATIENTS AND METHODS::** A total of 33 cases of PEM; 15 marasmus, 10 kwashiorkor (KWO) and eight marasmic kwashiorkor (MKWO) were recruited from Ain Shams University children's hospital, together with 12 matched controls. The mean age of patients was 11.87 ± 7.8 months and that of the controls was 14.83 ± 7.7 months. Detailed history taking and thorough clinical examination with special emphasis on anthropometric measurements were taken for each studied infant as well as laboratory investigations which included; complete blood count, liver and kidney functions and serum amylase and lipase. Ultrasonographic assessment of pancreatic head size was performed for the cases and controls. Nutritional rehabilitation program was carried out for 3-6 months followed by reassessment of the cases. **RESULTS::** The pancreatic head size values were significantly lower in all subtypes of PEM (1.52 ± 0.6 , 2.73 ± 0.12 and 3.00 ± 0.54 cm(3) in the marasmus, KWO and MKWO respectively) compared to the controls (5.13 ± 2.33 cm(3)). The serum amylase and lipase were also significantly lower in all subgroups of PEM when compared to the controls with significant improvement following nutritional rehabilitation coupled by a significant increase in pancreatic head size too. No significant differences were recorded when we compared the subgroups together except for a significant higher rate of change in serum amylase in edematous patients compared to nonedematous ones. The length of nutritional rehabilitation period, age of the patient, weight and serum albumin were the most determinant factors for pancreatic head size as evident from the multiple regression analysis study. **CONCLUSION::** The potentially correctable exocrine pancreatic insufficiency in cases of PEM should be carefully thought of when planning the nutritional rehabilitation program for such patients as it could be responsible for the serious continued morbidity issues that they face. We thus recommend that estimation of pancreatic head size and exocrine function should be included in the evaluation of PEM patients and they could also be used as a prognostic parameter. **SPONSORSHIP::** The patients enrolled were among those admitted and managed freely in the children's Hospital Faculty of Medicine Ain Shams University, including the use of the ultrasound apparatus,

while the kits have been purchased by authors who contributed in financing the study. European Journal of Clinical Nutrition advance online publication, 10 November 2004; doi:10.1038/sj.ejcn.1602053.