Abstract Category:

- NUTRITION

Abstract Title:

Exocrine pancreatic dysfunction is highly prevalent in severely malnourished children; Faecal Elastase-1 levels in Severe Acute Malnutrition

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Body of Abstract:
Background: Severe acute malnutrition (SAM) is associated with high mortality rates and is often related to severe diarrhoea. There is evidence of intestinal dysfunction leading to nutrient malabsorption. The cause of nutrient malabsorption and diarrhoea in malnutrition is likely multifactorial. Limited studies suggest that severely malnourished children suffer from exocrine pancreatic dysfunction. Aims: In this study we aimed to determine: 1) Pancreatic function in children with SAM and 2) Whether pancreatic function is different in children with oedematous versus non-oedematous malnutrition. Methods: For this study, conducted at Queen Elizabeth Central Hospital in Blantyre, Malawi, 89 children with SAM were included. Stool and blood samples were taken to determine faecalelastase (FE-1) and trypsinogen levels as markers of exocrine pancreatic function on admission and three days after initial stabilization. Results: 33 children (37.1%) had non-oedematous SAM and 56 children (62.9%) had oedematous SAM. FE-1 was measured in 77 study patients (86.5%) on admission and in 70 study patients (78.7%) three days after initial stabilization. On admission, 92% of patients showed evidence of pancreatic insufficiency as measured by FE-1 (< 200 µg/g of stool). Severe pancreatic insufficiency (FE-1 levels <100 µg/g of stool) was found in 76.6% of patients. Interestingly, the FE-1 levels remained low during the hospital admission in most patients. A significant higher number of patients with oedematous SAM (97.9%) had evidence of pancreatic insufficiency compared to patients with non-oedematous SAM (82.8%) (p=0.026). Evidence of severe pancreatic insufficiency was also substantially higher in the oedematous group (71%) compared to the non-oedematous group (29%) (p=0.009). Surprisingly, trypsinogen levels were elevated, particularly in the non-oedematous group (45%). Conclusions: Exocrine pancreatic dysfunction is highly prevalent in children with SAM, especially in children with oedematous SAM. These

results could have important implications for designing new dietary formulations to treat children with SAM.

Key Words:
exocrine pancreatic dysfunction; faecal elastase-1; severe acute malnutrition