Summary

Protein energy malnutrition is a primary cause of morbidity and mortality and complicating factor for other illness and responsible for half of deaths under 5 years of age (Jeffrey Goldbagen, 1996).

Protein energy malnutrition has a profound effect on both the structure and function of the exocrine pancreas (Pitchumoni, 1973).

The pancreatic enzymes are diminished in P.E.M. The disappear sequentially with lipase the first to be affected followed by trypsin, chemotrypsin and amylase. (Peter et al., 1985).

* P.E.M. produces glucose intolerance and reduced insulin release in response to increased blood glucose level (De-Mello et al., 1995).

Malnutrition is characterized by decreased fasting blood glucose level despite below normal insulin level (Heard, 1978).

P.E.M. is characterized by hypoglycemia and insulin resistance (Chhetri et al., 1980).

The glycemic response to glucagon in human malnutrition is also impaired (Milner, 1971).

It's reasonable to speculate that glucagon resistance may also exist in human chronic malnutrition (Kerr et al., 1979). In broad terms, hepatic control of glucose production appear to be altered in malnutrition to make it less responsive to both insulin and glucagon by different mechanisms (Payene et al., 1992).

This study was done to determine the level of pancreatic enzymes available (eg. Lipase, amylase), insulin and glucagon in malnourished children to detect the frequency with which pancreatic dysfunction occurs and the duration of malnutrition required to produce this effect.

The present work was carried out on 40 children with nonoedematous malnutrition (Marasmus), 12 children with mild degree, 14 children with moderate degree and 14 children with severe degree.

The degree of malnutrition was carried according to the body weight and other anthropometric measurements.

Their age ranged from 6-30 months.

The control group included 20 normal children of comparable age, sex and socioeconomic status. They were clinically and laboratory healthy. All patients were selected from the outpatient pediatric clinic of Benha University hospital.

Patients and control were subjected to the following:-

1- A detailed history specially dietetic history.

2- Thorough clinical examination.

3- Some anthropometric measurements. Weight, height, head circumference, chest circumference and midarm circumference.

4- The following investigations were done:-

* Total protein.

* Albumin.

* Creatinine.

* Blood glucose.

* Available pancreatic enzymes we assayed (Amylase - Lipase).

* Insulin and glucagon levels assayed.

- Our results revealed that insulin level is significantly decreased in all degrees of malnutrition as compared to control group but there was no significant changes between the groups.

  Also there was a significant + ve correlation between insulin, and both the albumin and body weight.

- The study demonstrated that glucagon level showed significant decrease in the severe cases of malnutrition as compared to the control group.

  We found a significant +ve correlation between glucagon and both the albumin and body weight.

  The study showed significant decrease of blood glucose level in all types of malnutrition as compared to the control group.

- Our work showed that there is significant decrease of lipase in all degrees of malnutrition as compared to the control group.

  Also there was a significant +ve correlation between lipase in moderate and severe cases of malnutrition and albumin.

However there is no significant correlation between lipase and duration of the disease.

- Our work showed that there was a significant decrease of amylase enzyme in moderate and severe cases of malnutrition as compared to the control group but no significant changes in mild cases as compared to the control group.

There was a significant +ve correlation between serum albumin level and amylase in moderate and severe cases of malnutrition.