INTRODUCTION AND AIM OF WORK

INTRODUCTION

Patients who develop diarrhea generally experience an excess loss of fluid and electrolytes via the gastrointestinal tract. If vomiting complicates the illness, this loss is compounded. Continued loss of fluid and /or electrolytes with limited fluid intake and fever help to bring about dehydration which is the most severe and serious complication of diarrheal diseases.

Children and specially infants are more susceptible to develop dehydration because of the greater rate of water turnover in relation to their total body weight (Winters,1973).

The dehydration may be isotonic,hypertonic or hypotonic. In isotonic,isonatremic,dehydration which is the most common type, proportional loss of water and electrolytes occurs,and the normal relative proportions of each still exists in body fluids,although total amounts of each have been reduced. In hypertonic or hypernatremic dehydration, there is predominant loss of water. In hypotonic,hyponatremic,dehydration ther is predominant loss of electrolytes. Extreme one-sided

losses seldom appear in the clinic unless induced by grossly misguided therapy (Ortiz,1978).

Two other important metabolic changes accompany diarrheal diseases: changes in glucose homeostasis and in hydrogen ion metabolism. Diarrhea and unobstructed vomiting lead to metabolic acidosis by various mechanisms (Finberg,et al 1982). Hypoglycemia in which blood glucose level is below 50 mg/dL. may be encountered in cases of dehydration specially in young children with long continued fasting (Kaye,et al 1961 and Glyn-Jones,1975).

Burman and Glaspole,(1964) described an infant who was hyperglycemic after an acute episode of diarrhea and vomiting. Levin and Geller,(1964) noted that 20 % of their infants with severe gastroenteritis had blood glucose values between 200-500 mg/dL. blood.

AIM OF THE WORK :

The aim of this work is to study the changes in blood glucose levels and their possible causes in infants suffering from diarrhea with different types of dehydration .

BLOOD GLUCOSE HOMEOSTASIS

The normal fasting blood glucose level is lower in infants than in children. In the full term newly born baby, in the first day of life, blood glucose varies between 40 and 60 mg/dL, while in the premature it is lower, it ranges between 20 and 6o mg/dL. In children the range is between 60-100 mg/dL (Nelson, 1987).

Maintenance of the plasma glucose concentration is critical to survival, because plasma glucose is the predominant metabolic fuel utilitzed by the central nervous system under most conditions. The central nervous system cannot synthesize glucose, store more than a few minutes' supply, or concentrate glucose from the circulation. Thus, brief hypoglycemia can cause profound brain dysfunction, and prolonged, severe hypoglycemia causes brain death. It is, therefore, not surprising that glucoregulatory systems have evolved to prevent or correct hypoglycemia (Wilson & Foster, 1985).

It is convenient to divide the regulation of glucose metabolism into 2 parts: