CHRONIC DIARRHEA IN PEDIATRICS

Thesis Submitted for Partial Fulfilment
of a Master Degree of Pediatrics

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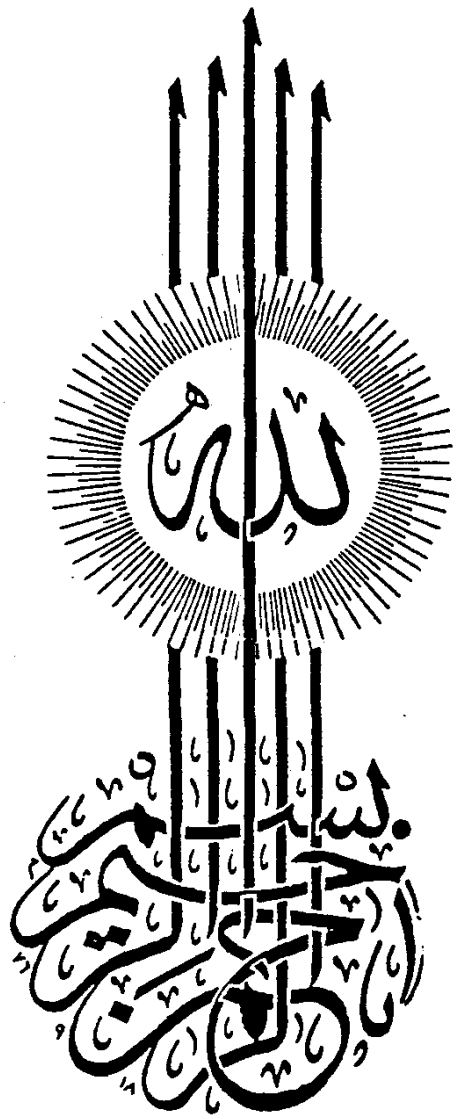

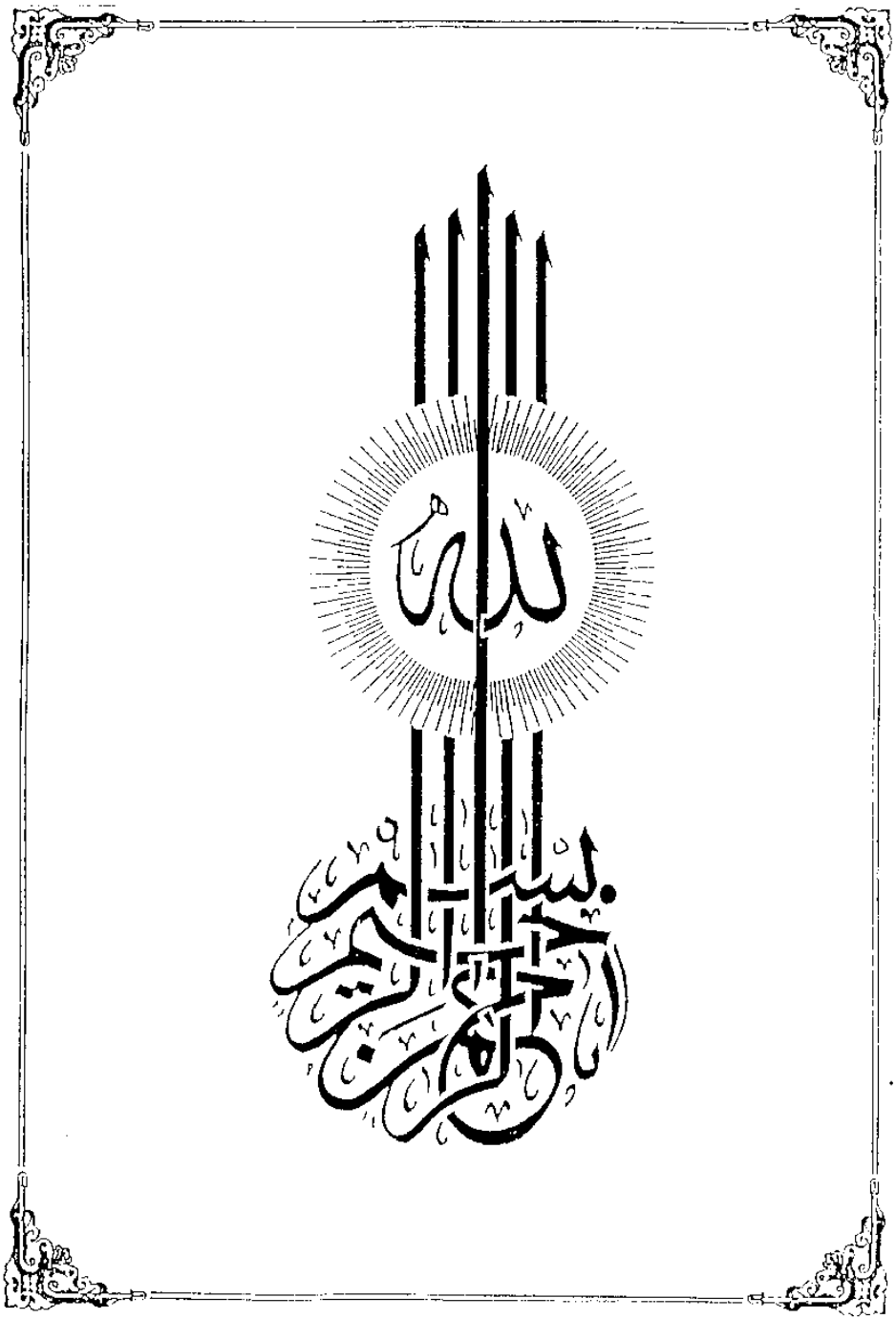

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INTRODUCTION AND AIM OF THE ESSAY

Introduction

It is recorded that gastrointestinal disorders account for approximately 5% of the pediatrics office visits. During the last few years, it has been encountered that a number of infants and children referred with chronic recurrent diarrhea where primary problem has been nutrional advice. The majority of these children with chronic recurrent diarrhea have no serious underlying disorders (Still, 1979). Diarrhea may have one of two deleterious results: dehydration of varying degree and / or malnutrition. In chronic diarrhea, a state of borderline dehydration occurs. In a recognized synergistic relationship with undernutrition (Scrimshaw, 1968), diarrhea contributes to malnutrition through anorexia, increased catabolism and caloric loss through both ends of the gastrointestinal tract. Undernutrition leaves the gastrointestinal tract in a more vulnerable state (Suskind, 1975) characterized by villous atrophy, gastric mucosal atrophy, hypochlorhydria, decreased motility, decreased duodenojejunal mucosal thickness and

bacterial colonization of the upper gut (Isely, 1982). In many countries, chronic diarrhea and malnutrition interact to provide a major cause of severe illness and death in childhood (Hutchins et al, 1982). Young infants are particularly prone to rapid deterioration when diarrhea is prolonged. The prompt and proper management of chronic diarrhea in infants is essential. If treated inadequately, the disorder becomes persistent (Lebenthal and Rossi, 1983).

- Aim of the Essay

This essay aims to define chronic diarrhea and its bad sequelae.

Also to study the epidemiology of chronic diarrhea particularly in relation to age, type of feeding, social class and nutrional condition.

To be aware about the common and rare diseases causing chronic diarrhea in pediatrics, Special consideration will be given for the different methods of diagnosis. Lastly to identify the proper and prompt management of chronic diarrhea in infancy and children.

REVIEW OF LITERATURE

STRUCTURE OF THE SMALL INTESTINE

- Structure of the absorptive surface

The mucosa shows projections (villi) as shown by light microscopy, to increase the surface available for absorption. The mucosal cells appears to have a striated edge that, with electron microscopy, consists of microvilli (granger and Baker, 1950). The muscularis mucosa, which is thin layer of smooth muscle, separates the mucosa and submucosa. Above this,is the lamina propria containing blood and lymph vessels in a frame-work of connective tissues with various cells including lymphocytes, plasma cells, macrophages and eosinophils.

The plasma cells and lymphocytes contain immunoglobulins, predominantly IGA which is of importance in local immune reactions. The cells covering the villi and lining the crypts between them are columnar epithelial cells. In the crypts, entero-chromaffin cells and panth cells are found. On the surface of the villi the cell population consists of differentiated absorbing cells, goblet cells and entero-chromaffin cells.

Absorbing cells: (fig.1)

A layer of fine fibrillar material is adherent to the absorptive surface and consists of mucopolysaccharides synthesized by the cells which it covers (Ito, 1969). This surface, the glycocalyx, may act as a barrier to prevent unwanted material entering cells and to limit diffusion of nutrients as monosaccharides back to intestinal lumen (Hamilton and MC Michael, 1968).

Immediately beneath the glycocalyx are microvilli, projections approximately 1U long and 0.1U wide. The brush border enzymes (alkaline phosphatase, dipeptidase and disaccharidases) are located in this part of the cells (lebenthal and Branski, 1981). The disaccharidases are localized to small knobs on the outer surface (Johnson, 1967). These enzymes are severely diminished in patients with coeliac disease but, conv-

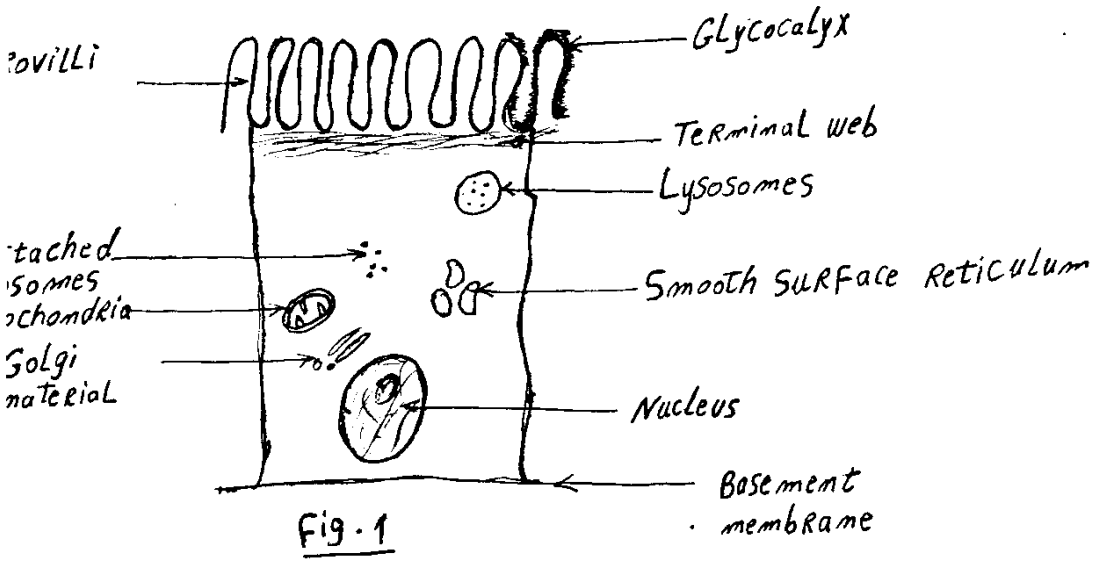

Fig. 1

The intestinal absorptive cell

ersely some patients have normal mucosal enterokinase and elevated luminal enterokinase activities suggesting that enterokinase is not brush border enzymes (lebenthal and Branski, 1981). Also, disaccharide intolerence, particularly lactose, is now considered to be a common condition that is present in a large proportion of the world's population (lebman, 1979).

Beneath microvilli the apical cytoplasm contain fibrils running parallel to mucosal surface and known as terminal web. This region propably acts as a support to the surface of the cells (Palay and Karlin,1959).

Goblet cells

They are distended by mucus which is gradually secreted into the intestinal lumen to lubricate and protect the epithelial surface.

Enterochromaffin cells

They are found throughout the alimentary tract.