PREVALENCE OF SMALL INTESTINAL BACTERIAL OVERGROWTH AMONG EGYPTIAN CHILDREN AND ITS IMPACT ON THE NUTRITIONAL STATUS

Thesis
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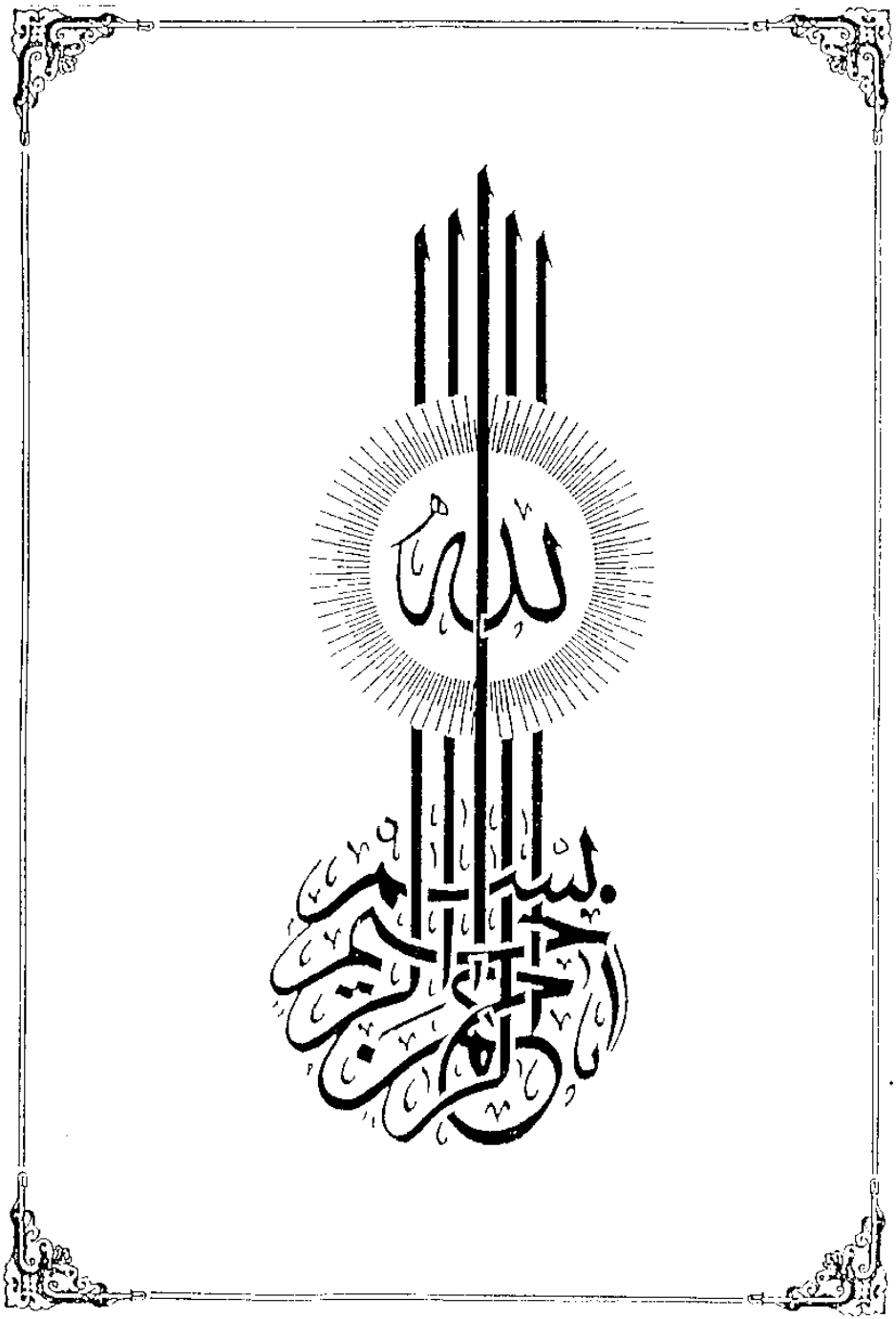

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LIST OF ABBREVIATIONS

BABT	:	Bile Acid Breath Test
BHT	:	Breath Hydrogen Test
C_3	:	Complement$_3$
CFU	:	Colony Forming Unit
Cm	:	Centimeter
ECN	:	Expert Comittee on Nutrition
FAO	:	Food and Agricultural Organization
FBH_2	:	Fasting Breath Hydrogen
g	:	Gram
G.I.T.	:	Gastro Intestinal Tract
H_2 gas	:	Hydrogen gas
H_2 receptor	:	Histamine receptor
HFA	:	Height for Age
H. Pylori	:	Helicobacter Pylori
ICN	:	International Conference on Nutrition
Ig	:	Immunoglobulin
Kcal	:	Kilo calory
Kg	:	Kilo gram
LBHT	:	Lactulose Breath Hydrogen Test
L. rhamnosus	:	Lactobacillus rhamnosus
MAC	:	Mid Arm Circumference
MCH	:	Meternal and Child Health
Mci	:	Milli Curry
Min.	:	Minute
ML	:	Milli Liter

MMC	:	Migrating Motor Complex
M mol	:	Milli mol
NCHS	:	National Center for Health Statistics
NNS	:	National Nutrition Survey
PABA	:	Para – Amino Benzoic Acid
PEM	:	Protein Energy Malnutrition
PPM	:	Part Per Million
RDA	:	Required Daily Allawances
RTI	:	Respiratory Tract Infections
SCFAs	:	Short Chain Fatty Acids
SD	:	Standard Deviation
SeHCAT	:	Selenium Homo Cholic – Tauro Acid Test
SIBO	:	Small Intestinal Bacterial Overgrowth
T.B.	:	Tubercle Bacilli
U.S.	:	United States
WFA	:	Weight for Age
WFH	:	Weight for Height
WHO	:	World Health Organization
XBT	:	Xylose Breath Test
Yr	:	Year

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INTRODUCTION & AIM OF THE WORK

INTRODUCTION

The intestinal bacterial flora co-exists in symbiosis with their host, but there are, however, certain conditions where the intestinal flora have been shown to cause clinical disorders either by the direct effect of their bacterial metabolite, or by interfering with the normal physiological processes, leading to malabsorption and to nutritional deficiencies ***(Tabaqchali, 1984).***

These disorders occur when there is disruption of normal processes which prevent small intestinal bacterial overgrowth (SIBO) such as intestinal motility, mucosal antibacterial defenses and gastric acidity ***(Savage, 1977).*** When the numbers and types of bacteria usually found only distally multiply in the more proximal intestine; malabsorption, diarrhea and malnutrition; the major manifestations of SIBO; are produced ***(Orenstein and whitington, 1984).***

Protein energy malnutrition (PEM) results in an increased risk of gastrointestinal infection. This can be attributed in part to impaired immune responses ***(Chandra and Wadhwa, 1989).*** The immune system is dependent on good nutritional status for its

optimal functioning. Immune function itself can provide a broad measure of nutritional deficiency ***(Chandra and Sarchielli 1993).***

In PEM, there is a significant impairment of several aspects of immunity, including cell-mediated immune responses, secretory immunoglobulin A production, phagocyte function, complement system and cytokine production ***(Chandra and Kumari,1994).*** Thus making malnourished children victims of the vicious circle of infection and malnutrition ***(Bhaskarm, 1992).***

It was found that bacterial overgrowth of the small intestine is a common feature in immunodeficient patients regardless of the immunological abnormality ***(Pignata et al., 1990).*** SIBO may be due to impaired local immunity ***(Smith et al., 1990).*** It would be expected that persistent gut contamination can occur among cases who are malnourished after an attack of diarrhea ***(Bagui et al., 1993).***

Malnutrition may be a determining factor in bacterial overgrowth. In a study conducted on Nigerian children, malnourished children with or without diarrhea were found to have a wider microbial spectrum in their intestinal aspirates as compared to well nourished children. Total bacterial counts were ranging between 10^3 and 10^9 organisms ml, non of the aspirates were sterile. This confirms bacterial overgrowth as a feature of

malnourished children with or without diarrhea ***(Omioke, and Abiodun, 1989).***

On the other hand, growth and nutrition have been documented to be adversely affected by gastrointestinal pathogens ***(Solomons, 1993).*** Bacterial overgrowth in the upper small intestine is postulated to cause persistent diarrhea ***(Bhatnagar et al., 1992).*** Although few episodes of diarrhea last longer than 14 days (persistent diarrhea), these episodes are particularly associated with growth faltering and malnutrition ***(Penny et al., 1990).***

AIM OF THE WORK:

The aim of this study was to evaluate the prevalence of small intestinal bacterial overgrowth among Egyptian children and to assess its impact on their nutritional status.


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