Cryptosporidiosis Among Children Presenting With Summer Diarrhea

Thesis

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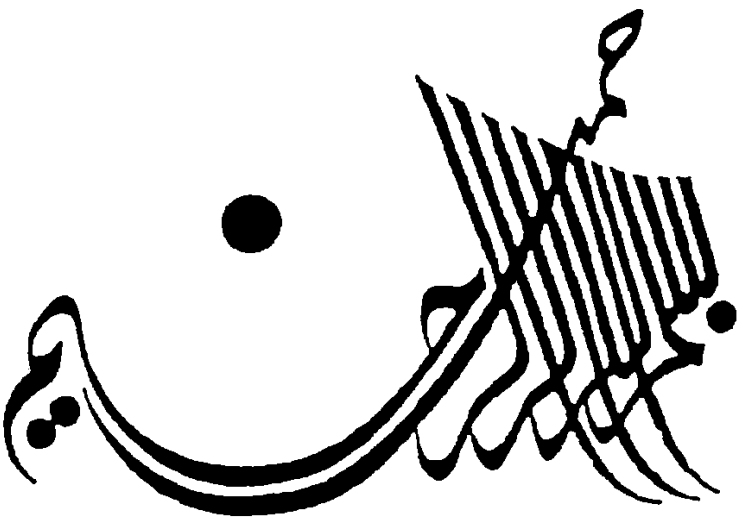

قالوا

سبحانك لا علم لنا إلا ما علمتنا

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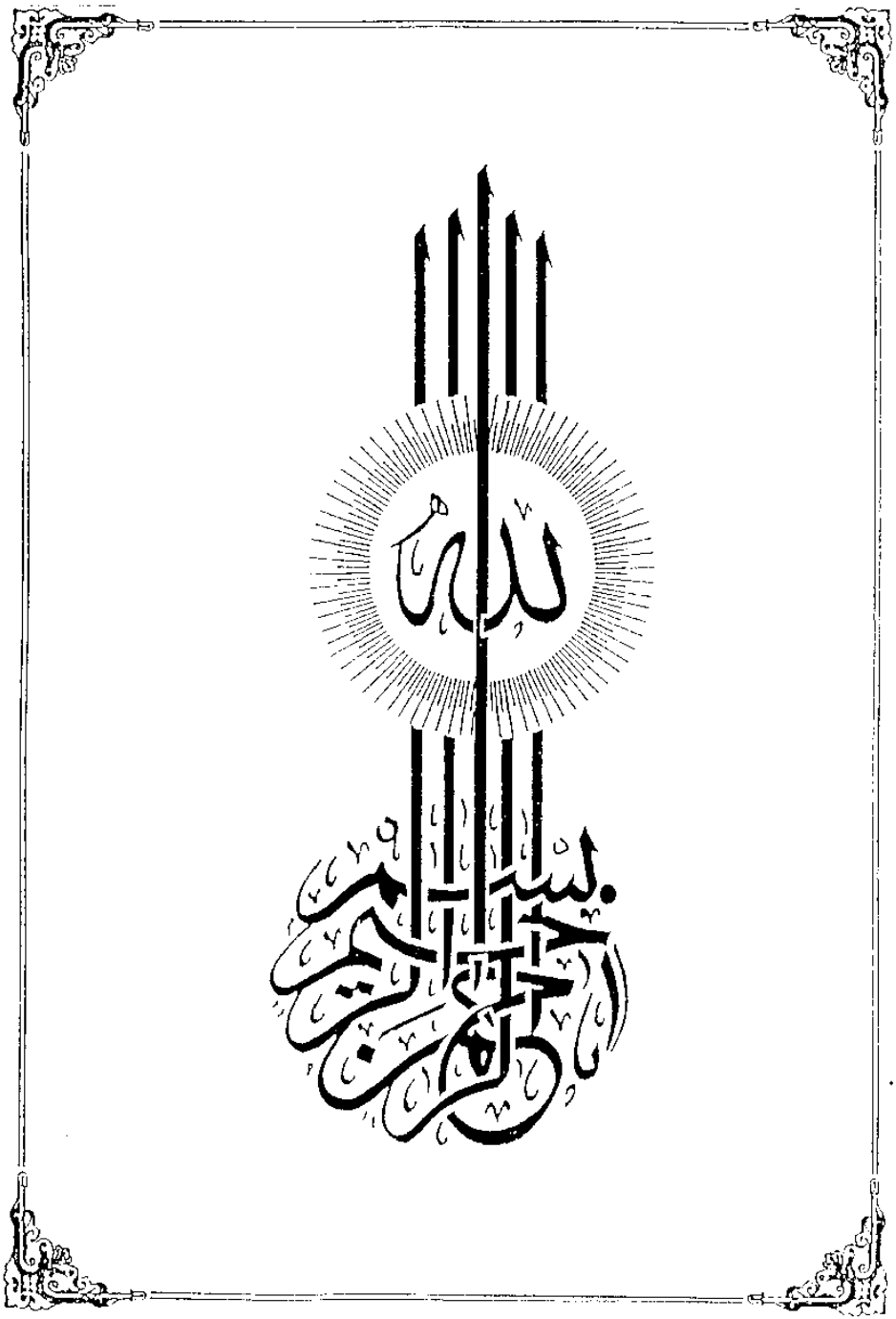

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LIST OF ABBREVIATION

5 MP	: 5 mercaptopurine
ACC	: antimicrobial associated colitis
AIDS	: Acquired immuno deficiency syndrome.
c AMP	: Cyclic adenosine mono phosphate
c GMP	: Cyclic guanosine mono phosphate.
C	: Cryptosporidium.
DLE	: Dialyzable leukocyte extract.
E PEC	: Entero pathogenic Escherichia coli.
E. coli	: Escherichia coli.
EAEC	: Entero adherent Escherichia coli.
EHEC	: Entero hemorrhagic Escherichia coli.
ElISA	: Enzyme linked immunosorbent assay.
ESR	: Erythrocyte sedimentation rate.
ETEC	: Entero-toxogenic Escherichia coli
GI	: Gastrointestinal
Gr	: Group
HIV	: Human immunodeficiency virus
HLA	: Human leukocyte Antigens
Hr	: hour
IBS	: Irritable bowel syndrome
ICU	: Intensive Care Unit

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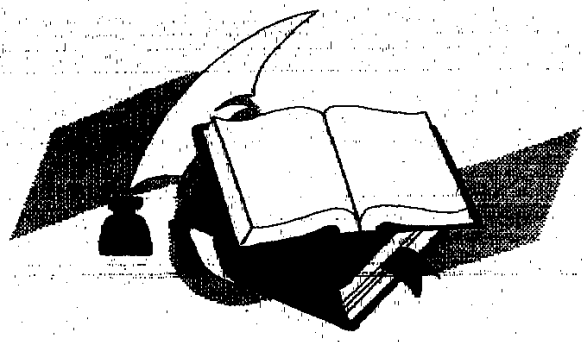


Introduction & Aim of the Work

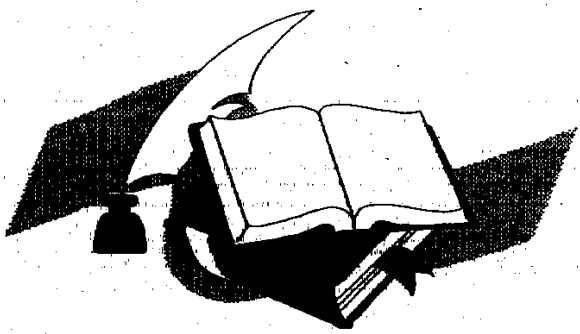
INTRODUCTION & AIM OF THE WORK

Diarrheal illness is considered as a major cause of morbidity and mortality, especially in young children living in developing countries **[Egger et al., 1990].**

Cryptosporidiosis is an important wide spread cause of diarrheal illness in humans and some domesticated animals **[Ma and Soave, 1983].**

Cryptosporidium is an ubiquitous protozoan that infects the gastrointestinal tract, leading to enteritis. It is likely that Cryptosporidium plays an important role in the overall health status of the children. It may also play a role in respiratory disease that often accompanies diarrheal illness in malnourished children **[Egger et al., 1990].** The course of the disease is closely linked to immunocompetence of the host **[Flanigan, 1994].** In immunocompetent host it causes acute self limited diarrheal illness in both developed and developing countries **[Walfson et al., 1985].**

In immunocompromised patients, cryptosporidiosis usually presents as life threatening, prolonged cholera-like illness **[Forgacs et al., 1983].** Feco-oral spread among humans and animals and ingestion of contaminated water appear to be the principal modes of transmission, **[D'Antonio et al., 1985].**



Review of Literature

Chapter I: Cryptosporidium

Biology of Cryptosporidium

Taxonomy:

The taxonomic classification of small intracellular protozoans assigned to genus Cryptosporidium is presented in Table (1).

Levine, [1984] classified Cryptosporidium (C.) into four species; one of those infecting fishes (C. nasorum), repetiles (C. crotali), birds (C. meleagrides) and mammals (C. muris). But Upton and Current (1985) suggested that at least two valid species infect mammals, C. parvum infecting the small intestine and C. muris infecting the stomach.

Table (1): Taxonomic classification of Cryptosporidium.

Classification	Name
Phylum	Apicomplexa
Class	Sporozoasida
Subclass	Coccidiasina
Order	Eucoccidiorida
Suborder	Eimeriorina
Family	Cryptosporidiidae

[Current and Garcia, 1991].

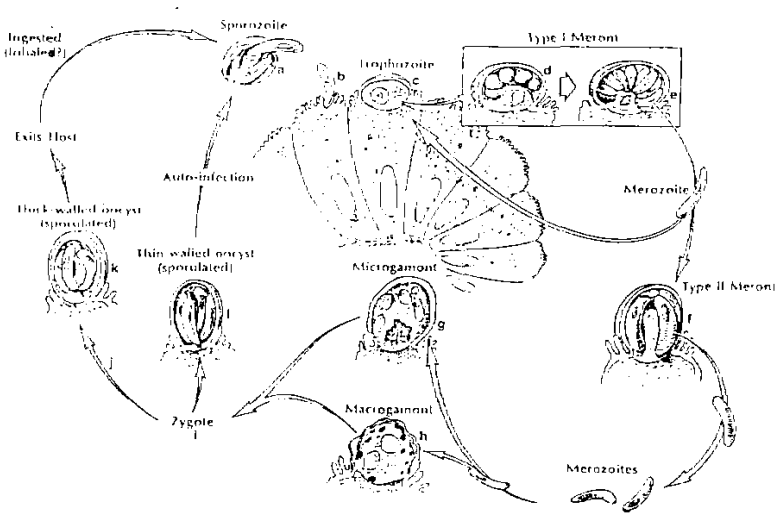


Fig. (1) Life cycle of Cryptosporidium *(Quated from: Current and Blagburn, 1990)*

countries and 8.5% in developing countries.

The frequency of cryptosporidiosis was shown to be higher in urban areas of Costa Rica **[Mata 1988]**, and Liberia **[Hojlyng et al., 1984]**, where there is closer contact among humans than in rural areas. Symptomatic infection among children is more frequent than in adults, because most adult are immune due to frequent exposure throughout life **[Tzipori and Campbell, 1981]**.

Cryptosporidiosis is commoner among children 6-12 months old and decreases with age towards 2 years **[Taylor et al., 1985]**. It is less common in neonates compared with infants of 6 months or older **[Mata, 1986]**, because of protection by maternal antibodies resulting from the mother's own frequent exposure. The youngest child reported with cryptosporidiosis was a three days old infant born to a mother who had had diarrhea due to cryptosporidiosis several days before vaginal delivery **[Bossen and Britt, 1985]**. Several studies revealed that breast fed infant rarely catch cyrptosporidiosis **[Fayer et al., 1986]**. In contrast to this, other studies showed no difference between breast-fed and bottle- fed infants **[Mathan et al., 1985]**.

Infections are often seasonal, with a higher prevalence during warmer and wetter months, but a distinct seasonal trend was not observed in all countries. For instance, in United Kingdom and India no seasonal variations was documented **[Casemore et al., 1985; and Mathan et al., 1985]**.

A number of water-borne outbreaks have been

Table (2): The frequency of human cryptrosporidiosis in Egypt

Location	Tested number	% of patients	Age & peak season	Asymptonatic carriage	Reference
1- Cairo	117	2.65%	Children immunosuppressed + immunocompetent	0	Azab et al., 1985
2- Zagazig	80	8.75%	> 50% children	0	Aboul-Maged & Abou Shady, 1986
3- Cairo	400	0	No data	0	Salem et al., 1987
4- Cairo	No data	4.30%	No data	0	Nour et al., 1988
5- Egypt	151	9%	Mean age 18 month	0	Mithail et al., 1989
6- Cairo	460	6.80%	Children, all year	3	Fayyad et al., 1989
7- Qalubyia	213	3.20%	Children and infant	0	Khashaba et al., 1989
8- Alexandria	150	4.50%	Children, spring and summer	0	Abdel-Moneim et al., 1989
9- Cairo	180	20.50%	Age 2-30 month	0	Mohsen et al., 1991
10- Cairo	196	18.90%	Children	2.20%	Ibrahim et al., 1995