RETROSPECTIVE ANALYTICAL STUDY OF MENINGITIS DURING INFANCY, CHILDHOOD AND ADOLESCENCE

Thesis

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Presented by

LOBNA SALAH ELDIN ABD EL-HAMEED

(M.B., B.Ch.)

Under Supervision of

Prof. Dr. **ABD EL-KHALEK KHATTAB**

M.D. (Ain Shams), Ph.D. (Ed.),

F.R.C.P. (Ed.), F.R.C.P. (Glasg.), D.C.H.

Professor of Pediatrics

Ain Shams University

FACULTY OF MEDICINE

AIN SHAMS UNIVERSITY

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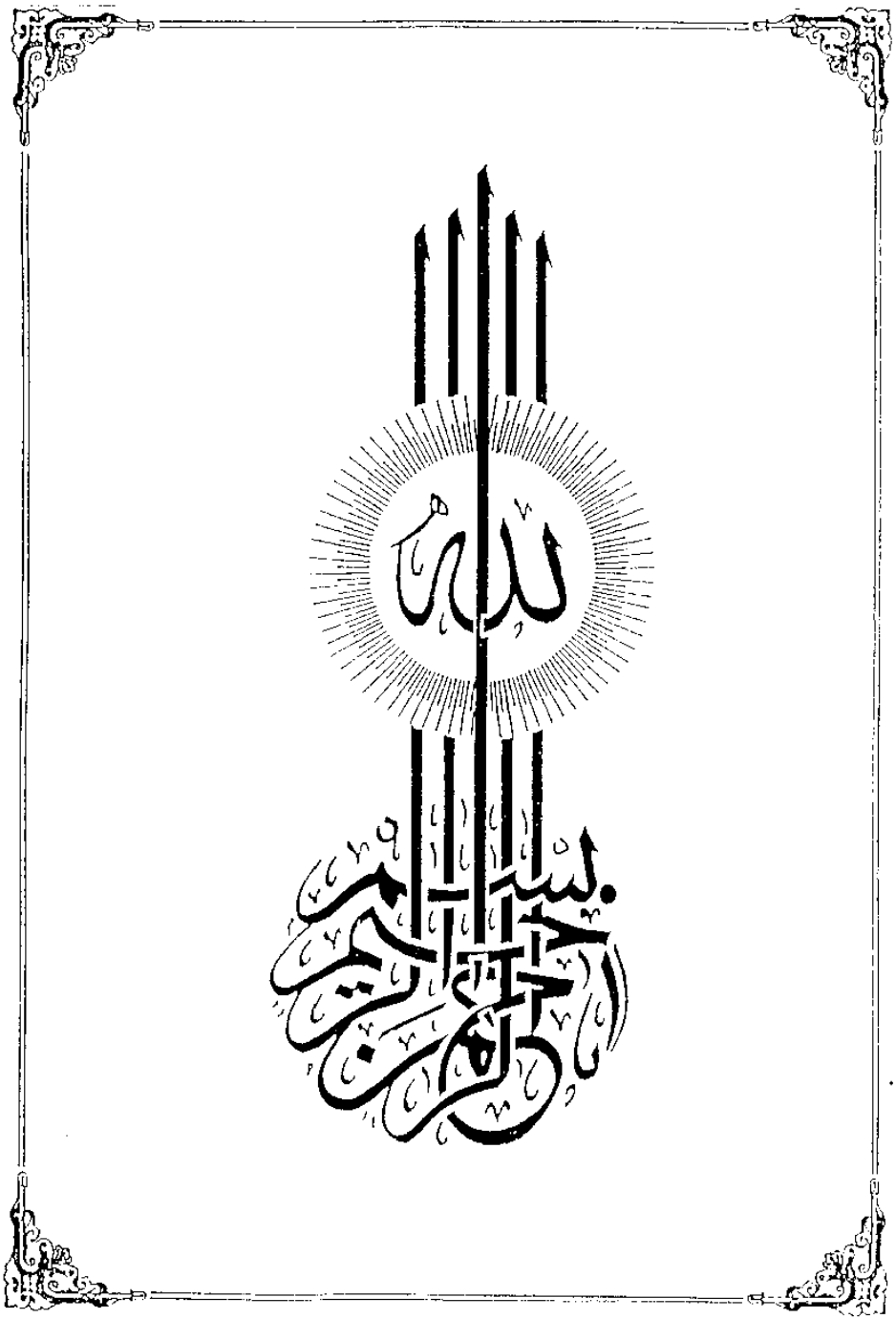
بسم الله الرحمن الرحيم

" سبحانك لاعلم لنا إلا ماعلمتنا، إنك أنت العليم الحكيم "

صدق الله العظيم

سورة البقرة
الآية ٣٢



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LIST OF ABBREVIATIONS

H. influenza	: Haemophilus influenza.
N. meningitidis	: Neisseria meningitidis.
St. pneumoniae	: Streptococcal pneumoniae.
TB meningitis	: Tuberculous meningitis.
C.S. meningitis	: Cerebrospinal meningitis.
CSF	: Cerebrospinal fluid.
WBC	: White blood corpuscles.
PNL	: Polymorphonuclear leukocytes.
E. coli	: Escherichia coli.
IV	: Intravenous.
IM	: Intramuscular.
DIC	: Disseminated intravascular coagulopathy.
CIE	: Counter immunoelectrophoresis.
Staph. aur.	: Staphylococcus aureous.
St. Gp. B.	: Streptcoccus group B.
Ps. Aerug	: Pseudomonas aeruginosa.
S. typhi	: Salmonella typhi.

INTRODUCTION

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Meningitis is defined as the inflammatory process occurring in the leptomeninges, and pia-arachnoid (Cramblett, 1966).

Increased susceptibility of yound children in general and newborn infants in particular to meningitis might be due to the relatively high vascularity of their brains, and because of low levels of immunity against some organisms specially Escherichia coli, Haemophilus influenza and group B-beta streptococci (Feigin and Dodge, 1976).

Fraser and Feldman (1973), reported that the greatest morbidity following bacterial meningitis was found in individuals who had been afflicted between birth and four years of age.

Knowing that 80% of all types of meningitis occur in children makes it a seriouss paediatric health problem that needs careful consideration of ecological factors and better preventive measures (Hassan et al., 1969).

AIM OF THE STUDY

Is to find out the magnitude of the problem of meningitis in paediatric age group.

METHODOLOGY

This will be done by revision of the available records:

a. To find out the prevalance of meningitis during infancy, childhood and adolescence through studying all cases ranging in age from birth to 15 years and admitted to Abbassia Fever Hospital during the last 10 years.
b. To carry a descriptive study of the above mentioned cases concerning aetiology, symptoms and signs.
c. To find out case mortality and morbidity among the affected group.
d. To statistically analyse the collected data to reach the conclusions.

REVIEW OF LITERATURE

AETIOLOGY

It is well known that the causative agent in cerebro spinal meningitis varies according to the age of the host (Floyed et al., 1974).

During the neonatal period, gram negative bacilli (most frequently E-coli, serotype KI), are the most important causative organisms (Backer, 1983 and Robbins et al., 1974).

Second to E coli is group B beta-hemolytic streptococci, especially BIII serotype, an organism which has shown increasing prevalence in recent years (Baker, 1979 and Fitzhardinge, 1985).

Avery (1981) reported that the next most common etiological agent in the neonatal age group is listeria monocytogenes.

Of particular importance is the observation that neonates are highly resistant to meningococcal meningitis, but they become susceptible by six months of age (Irving et al., 1969). From three months until three years of age, H.Influenza (Serogroup B) is the most common cause (Swartz, 1982) with a maximal incidence of 6-8 months of age, which declines slowly after 12 months of age, so that H.meningitis is seen as frequently as meningcoccal and pneumococcal meningitis in two years old children (Goldacre, 1976; Miner and Edman, 1978).

Between three and eight years of age, H.Influenza meningitis becomes progressively less common and N.meningitidis becomes considerably more prevalent. In children over four years of age, st pneumoniae and N. meningitidis are the most common organisms producing meningitis (Bell et al., 1981).

In Egypt, Miner and Edman (1978) reported that group A comprised 95% of isolated meningococci.

It is found also that the median age for meningococcal meningitis in Egypt was ten years for males and nine years for females, and that for pneumococcal meningitis is eight years for males and six years for females (Miner and Edman, 1978).

St. pneumoniae, and H.influenza have not caused epidemics comparable to those seen in N. meningitis (Tauber and Sande, 1984).

In significant proportion of bacterial meningitis occurring at all ages, the causative organism can not be identified at all and diagnosed as purulent meningitis (Hassan, 1969 and Overall, 1970).

These cases were supposed to be meningococcal meningitis partially treated prior to admission (Jensen et al., 1969 and Miner and Edman, 1978).

The commonest causes of aseptic meningitis are mumps, enteroviruses and less frequently measles, herpes simplex, influenza, and varicella zoster viruses (Ponka and Peterson, 1982).

In Egypt, the virus that has been most frequently incriminated is the mumps virus closely followed by the poliovirus and other entero-viruses (Abdel Wahab et al., 1969).

Tuberculous meningitis has markedly decreased nowadays in developed countries (Simek et al., 1975), but unfortunately it is still high in developing countries including Egypt (Hassan, 1969).

Raafat in his study in Egypt (1979) reported that T.B. meningitis accounted for 35.4% of all cases.

Classification According to the Causative Organism

I) Acute bacterial meningitis:

- Meningococcus.
- Pneumococcus.
- Haemophilus influenzae.
- Streptococci.
- Gram negative bacilli.
- Staphylococci.
- Listeria monocytogenes.

II) Other types:

a. Purulent meningitis:

   no organism detected

b. Aseptic meningitis:

   - Viral:

   . Echovirus

   . Coxackie virus.

   . Mumps virus.

   . Lymphocytic choriomeningitis virus.

   . Polio virus.

   - Cryptococcal:

   . Cryptococcus neoformans.

c. Tuberculous meningitis:

   Mycobacterium tuberculosis. (Martin et al., 1981).

EPIDEMIOLOGY OF MENINGITIS

Incidence and Geographical Distribution

- Cerebrospinal meningitis occurs throughout the world but is particularly prevalent in Africa between latitude 6° and 16° N, the so called "Meningitis belt" (Ramsey and Emond, 1978).
- Major epidemics have been recorded from the beginning of this century. During the first half of the century, the epidemic cycles were recurrent every 14 years and each epidemic wave lasted for four years (1913- 1916, 1931-1934, 1950- 1954) (El-Akkad, 1969).
- Although Egypt is north to the classical meningitis belt, it experiences a sizable incidence of bacterial meningitis (Miner and Edman, 1978).
- It is endemic in Egypt occurring in sporadic cases all the year round, (Hamami, 1969) with an incidence of about 3/100,000 yearly (Salah and Mohamed, 1978).
- In Egypt, it is more common in sea shore towns as Alexandria, Port-Said and Aswan-after building the high dam than in Cairo (El-Akkad, 1969).
- It was noted that, in 1950, epidemic nearly 75% of reported cases occurred in big cities e.g., Cairo, Alexandria, Port-Said and Suez, a fact which may be attributed to the over crowding of people (Hamami, 1969).