PREVENTION OF EPILEPSY

Thesis

Submitted for Partial Fulfillment of
M.Sc. Degree in Neuropsychiatry

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1992

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ACKNOWLEDGEMENT

It has been my greatest honour to have this work supervised by ***Prof. Dr. Mahmoud Moustafa,*** Professor of Neuropsychiatry. I am very grateful to his constructive guidance and advise.

I wish to express my gratitude and deep appreciation to ***Dr. Afaf Hamed,*** Assistant Professor of Neuropsychiatry. This work is, by far, "a result" of her accurate supervision and precious help.

Lastly, I would like to acknowledge my colleagues in "Abasia Hospital for mental health", particularly Dr. ***Ahmed El Hadi***, I have got a great benefit from their generous co-operation.

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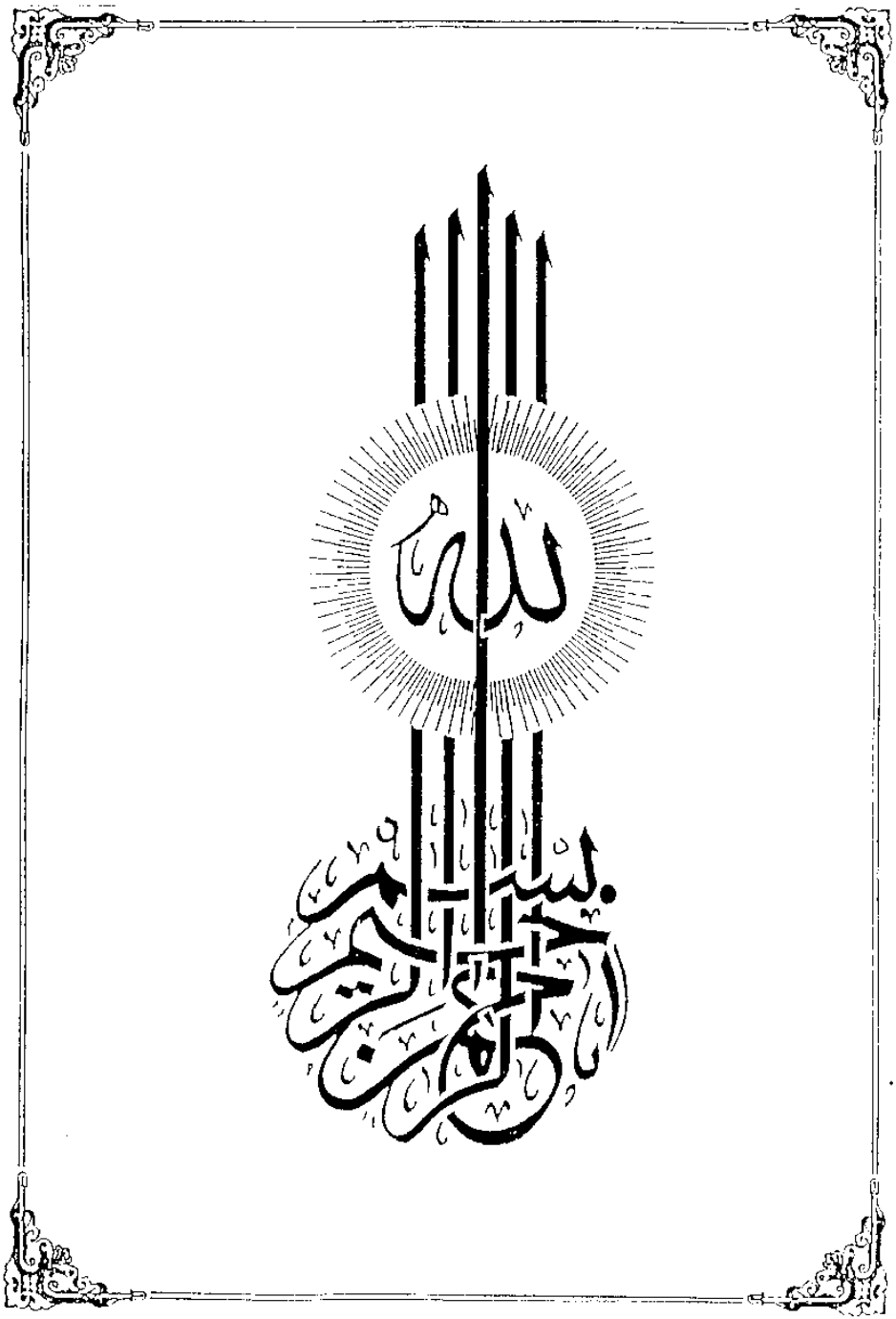

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INTRODUCTION

The term Epilepsy does not refer to a specific disease but rather to a group of symptom complexes that have many causes.

Epilepsy is common. The prevalence rate of epilepsy in a work performed in 1981 in Gabal Asfar in Egypt has been proved to be 4.1 per 1000 population (Mekky, 1981). Accordingly, it is expected that, in 1992, about 230.000 Egyptians are epileptics.

Although some epileptic cases are treatable, or at least controllable, epilepsy is a potentially handicaping condition in about one fifth of epileptic patients. Full implementation of the possible measures of epilepsy prevention could produce substantial saving, not only in terms of human suffering, but also in terms of the social cost.

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AIM OF THE WORK

One of the important health problems facing developing countries, as Egypt, has been epilepsy; First of all because of its incidence and prevalence; A second reason is that leading causes of epilepsy (like birth injuries, childhood infections, febrile seizures and head injuries because of traffic accidents) are all very frequent in developing countries; The third reason is that because of lack of paramedical personnel, specialists and funds it is often difficult to diagnose and treat epileptic patients.

Regrettably, public health officials consider that epilepsy rarely threatens life and does not affect national economy so that it is not ranked high in the list of medical problems such as gastroenteritis and poliomyelitis.

Unless we study this problem, patients with epilepsy in our society, and plan for reducing and controlling it, we will definitely face a drastic situation.

The aim of this work is to provide a review of the literature on epilepsy prevention, in order to outline a reasonable applicable program for prevention of epilepsy in Egypt.

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CHAPTER I

Epilepsy

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Definition of Epilepsy

The term epilepsy is of greek origin from the verb epilambanein "to seizure or to attack". For the ancients epilepsy was recognized as "sacred disease" (a name has survived in some parts of the world to this day) (Temkin, 1971).

Romans used the term "comital disease", "morbius comitialis" because if a person had a convulsion in the Roman popular assembly or (Comitia), the assembly was suspended (Lennox, 1960).

In the middle ages, the term falling evil and falling sickness were used for epilepsy, and from about the beginning of the christian era, epilepsy became increasingly associated with periodic ecstasies which comprehended vaguely under the name of possession (Blumer, 1984).

Russell Brain (1955) defined epilepsy as a paroxysmal and transitory disturbance of the function of the brain, which develops suddenly, ceases spontaneously and exhibits a conspicuous tendency to recurrence, though in its most typical from it is characterised by sudden loss of consciousness, which may or may not be associated with tonic spasm and clonic contraction of the muscles.

Jackson (1931) defined epilepsy as sudden, occasional, excessive, rapid and local discharges of grey matter.

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Guinena (1959) defined epilepsy as an irritative encephalopathic syndrome, which is characterized pathophysiologically by a sudden self sustained, self propagating and self terminating discharge of certain ganglionic cells, electroencephalography by the paroxysmal appearance of abnormal brain waves of dysrythmic hypersynchronic type and clinically by the resultant and usually recurrent episodes of psychic, somatic and autonomic disorders which may appear either singly or in various combinations, and which may or may not be associated with disturbance of consciousness dominate the clinical picture and may even constitute the only feature of the epileptic seizure.

Scott (1978) defined epilepsy as the occurrence of brief repeated and often stereotyped disturbance of behaviour usually associated with alteration of consciousness, there are often motor concomitants, and sudden large amplitude distrubance in the brain activity which can be recorded by scalp electrodes.

Nidedermeyer (1983) stated that there is no disease named "epilepsy", Epileptic seizures are abnormal reactions of the brain or parts of it may be involved, the extent of involvement largely determines the type of seizure. The basic disorder is most commonly localized in the brain, but the failure of important organ systems outside the brain and associated metabolic toxic changes may lead to secondary encephalopathy and thus to epileptic seizures; Genetic predisposition also plays a certain role in epileptic seizures.

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In the American Psychiatric Association, Psychiatry Glossary (1984), epilepsy was defined as a disorder characterised by periodic motor or sensory seizures or their equivalents, and sometimes accompanied by a loss of consciousness or by certain equivalent manifestations. It can be idiopathic (no known organic cause) or symptomatic (due to organic lesions), accompanied by abnormal electrical discharge which may be shown by electroencephalograph (EEG) recording.

Goldensohn (1989) stated that the term epilepsy does not refer to a specific disease but rather to a group of symptom complexes that have many causes, some are static and others are progressive. All conditions that cause epilepsy have in common the quality of causing cerebral neurons to become excessively excited.

TERMINOLOGY

Attempts to diagnose and manage epilepsy date back centuries, and consequently much of the confusion surrounding this disorder arises from the varied, and often archaic, terminology that has been used in discussion of epilepsy.

For the purpose of proper communication, some terms which will be used throughout this review will be discussed here, like: Seizure, convulsion, epilepsies, epileptic syndromes, idiopathic, symptomatic, cryptogenic epilepsy, generalized and localization related epilepsy.

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Seizure:

Seizure is not a synonym for epilepsy, even though seizures are the most basic feature of epilepsy. A depressed patient treated with electroconvulsive therapy has recurrent seizures, but does not have epilepsy. Epileptic seizure defined as a paroxysmal alteration of intellectual, sensory, motor, autonomic or affective activity which is time-limited and presumably associated with neuronal hypersynchronous overactivity. An individual must have more than one seizure to be designated as having epilepsy (Lechtenberg, 1985).

Convulsion:

Seizures often are loosly called convulsions, but a convulsion is a type of seizures characterized by motor phenomenon, either repetitive (clonic) or maintained (tonic) involuntary contractions of muscles, which may be generalized or confined to specific muscle groups (Nelson, 1987).

Epilepsies and Epileptic Syndromes:

Some of the epileptic disroders are diseases and others are syndromes. An epileptic syndrome is an epileptic disorder charactrised by a cluster of signs and symptoms occuring together. In contradiction to a disease, a syndrome does not necessarily have a common aetiology and prognosis (Commission on classification and terminology of ILAE 1989)

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Idiopathic, Symptomatic and Cryptogenic epilepsy:

The term idiopathic derives from the Greek "idos", meaning self, or personal. Idiopathic (primary) epilepsy is described as disorder "not preceded or occasioned by another". While symptomatic (secondary) epilepsy is considered a consequence of a known or suspected disorder of the central nervous system.

The term cryptogenic refers to a disorder whose cause is hidden or occult. Cryptogenic epilepsy is presumed to be symptomatic, but the aetiology is not kinown (commission on classification and terminology of ILAE, 1989).

Generalized and localization related epilepsy:

Generalized epilepsy is epileptic disorder with generalized seizures, i.e., "seizures in which the first clinical change indicate initial involvement of both hemispheres and the ictal encephalographic patterns initially are bilateral".

Localization-related (focal, local, partial) epilepsy is epileptic disorder in which seizure semiology or finding at investigation disclose a localized origin of the seizures.

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CALSSIFICATION

In the first half of the nineteenth century, the old French school of Esquiral's time, distinguished the well known grand mal from the petit mal type of seizure (Niedermeyer, 1983).

The distinction of the true petit mal absence from somewhat similar automatism-like seizures is attributable mainly to early EEG observations of Gibbes et al., 1937 (Hill, 1981).

Focal motor seizures are associated with the names of Bravis and Jackson and were clearly individualized as a special form of epileptic seizures in the course of the nineteenth century (Niedermyer, 1983).

Following the pioneering work of Penfield and Jasper (1954) it has become usual to classify epilepsies according to the presumed site (or sites) of origin within the brain (Fenton, 1981).

In 1964 the ILAE prepared the International Classification of Epileptic Seizures (ICES) which was widely accepted. This classification was revised several times, the recent form was accepted by the General Assembly of the ILAE in September 1981.

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The outline of the ICES:

I. **Partial Seizures:**

A. Simple Partial seizures:

(consciousness not impaired)

1. With motor symptoms
2. With somatosensory or special sensory symptoms.
3. With autonomic symptoms.
4. With psychic symptoms.

B. seizures:

(with impairment of consciousness)

1. Begining as simple partial seizures and progressing to impairment of consciousness.
2. With impairment of consciousness at onset.
   a. With impairment of consciousness only.
   b. With automatism.

C. Partial seizures Secondarily Generalized:

1. Secondary to simple partial seizures.
2. Secondary to seizures.

II. **Generalized Seizures** (bilaterally symmetrical and without local onset)

a. Absence seizures.
b. Myoclonic seizures.
c. Clonic seizures.
d. Tonic seizures.
e. Tonic-clonic seizures.
f. Atonic seizures.

III. **Unclassified Epileptic Seizures** (due to incomplete data) (Goldensohn, 1989).

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The ICES has the disadvantage of being confined to the description of individual seizure types while the daily communication among clinicians consists of description of epileptic syndromes.

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