CHAPTER I

INTRODUCTION

A seizure (from Latin "sacire" to take possession of) is a paroxysmal event due to abnormal, excessive, hyper synchronous discharges from a group of neurons in the central nervous system (CNS). Depending on the site of origin and spread of these discharges, it may have a range of clinical manifestations ranging from violent convulsions to subtle experiential phenomena which may not even be recognized by the observer. The meaning of two terms seizure and epilepsy are not synonymous. A seizure is that which is described above whereas epilepsy is used to describe a person who has recurrent seizures due to chronic underlying process. This means that a person who has a single seizure or recurrent seizures due to correctable or avoidable conditions does not necessarily have epilepsy. Moreover epilepsy refers to a clinical phenomena rather than a disease entity. So this has implications on management. Using the definition of epilepsy as two or more unprovoked seizures, the incidence of epilepsy is approximately 0.3 to .5 percentage in different populations of the world, and the prevalence has been estimated at 5 to 10 people per 1000 population (Lowenstein, 1996).

The initial step in the evaluation of a person with seizure is to determine the type of seizure that has occurred. This is essential for focusing the diagnostic approach on particular etiology, selecting appropriate treatment and providing information about prognosis. The International League Against Epilepsy (ILAE) has formulated a classification system based on clinical features and

electroencephalographic (EEG) findings which is accepted worldwide and is given below.

Table 1.1 Classification of epilepsy

Classification of seizures
1. Partial seizures ♦ Simple-partial seizures (with motor, sensory, autonomic, or psychic signs) ♦ Complex-partial seizures ♦ Partial seizures with secondary generalization **2. Primarily generalized seizures** ♦ Absence (petit mal) ♦ Tonic-clonic (grand mal) ♦ Tonic ♦ Atonic ♦ Myoclonic **3. Unclassified** ♦ Neonatal seizures ♦ Infantile spasms.

(Source: Oxford Textbook of Medicine. Ed 14th. pp. 3911)

Causes of epilepsy -- Seizures are a result of the disruption of the delicate balance between excitation and inhibition in the neurons of the CNS. In the neonatal and early infancy period, the potential causes are encephalopathy resulting from hypoxia, birth trauma, CNS infections, congenital CNS abnormalities and metabolic disorders. In late infancy and early childhood febrile seizures (seizures associated with fevers but without any evidence of CNS infections) are very common. Late childhood is the time when most idiopathic or genetically based epilepsies are common. During adolescence and early childhood, epilepsies arising secondary to acquired CNS lesions start to predominate. They are mostly associated with head injury, CNS infections (tuberculoma, parasitic infestations like cysticercosis), brain

tumors, illicit drugs use or alcohol withdrawal. The causes in older adults include cerebrovascular disease, CNS tumor and degenerative diseases.

While evaluating a patient with seizures it is important to (1) establish whether the reported episode was a seizure or not, (2) determine the cause of seizure by identifying risk factors and precipitating events, and (3) decide whether anticonvulsant therapy is required in addition to the treatment of any underlying illness. An absolute form of diagnosis would be possible if the fit could be witnessed by a trained person but this is rarely possible because of the episodic nature of the illness. The mainstay of diagnosis is the history from a eye witness. In many cases, diagnosis of epilepsy is solely based on clinical grounds and the examination and laboratory findings are often normal. In fact, the investigations are done to look for any identifiable underlying cause which could be treated rather than to determine whether the episode was a seizure or not. Other common conditions that mimic seizures are syncope, psychogenic seizures, transient ischaemic attacks, drop attacks and breath holding attack in children.

Treatment in epilepsy is almost always multi-modal including treatment of underlying condition that causes or contributes to the seizure, avoidance of precipitating factors, suppression of further attacks by medication and /or surgery and the management of psycho social issues. The total management has to be individualized to each patient as there is variation in efficacy and occurrence of side effects of drugs. Unless otherwise indicated, it is customary to start the treatment with one drug and maximum tolerated dose to be reached, if not controlled, before adding another medication. The choice of drug depends on the type of epilepsy, the

side effect profile of the drug, accessibility of the patient to regular follow up and the cost factor. The list of commonly used drugs is given below.

Table 1.2 Anti epileptic drug of choice

Focal onset seizures *	Generalizes seizures		
	Generalized Tonic-clonic	Absence	Myoclonic & atonic
First line			
Carbamazepine Phenytion Valproic acid	Valproic acid Carbamazepine Phenytion	Ethosuximide Valproic acid	Valproic acid
Alternatives			
Lamotrigine Gabapentin Phenobarbital Primidone	Phenobarbital Primidone	Acetazolamide Clonazepam Phenobarbital	Acetazolamide Clonazepam
* Simple-partial, complex partial and secondarily generalized tonic-clonic			

(Source: Harrison's Principle of Internal Medicine, 18th Ed. pp. 2320)

Phenobarbitone which is the proposed drug in this proposal is given at a dose of 60-180 mg per day (1-4 mg/kg in adults and 3-6 mg/kg in children). It has a half life of 90 hours with therapeutic range of 10 - 40 μg/ml. The major side effects are sedation, ataxia, confusion, dizziness, decreased libido, depression and skin rashes. It is reasonable to attempt withdrawal of therapy after 2 years of fit free period. The drug is gradually reduced over 2-3 months period.

Although epilepsy may cause no appreciable problems, it may create challenges or compromise an individual's quality of life (QOL), or it may produce devastating effects if there are multiple disabilities present. The factors that interact with epilepsy in producing effects on QOL include (1) demography, (2) culture, (3) biological and psychosocial events, (4) coping strategies used and (5) the ways he

defines the medical, social and personal realities of his condition. Studies have shown that people affected with epilepsy may suffer considerable social and emotional problems such as fear of rejection, anxiety, low self esteem, depression, a high suicide rate, problems with employment and low marriage rate. Driving license restrictions lead to limitations on travel and creates a perception of lack of freedom. Research also suggests that self-perception and perception of epilepsy are the most significant factors affecting the feelings of well-being. In epileptics QOL is seen to affect compliance in a major way. Following the advice given by the caregiver may be total, partial, absent or erratic which, for obvious reasons, may prove detrimental to the management of the patient. Caregivers such as parents, spouse, relatives, and others who live with the person with epilepsy are also affected. For example, mothers often suffer from feelings of guilt, believing that their child's epilepsy is their fault. It can be concluded that even though epilepsy may strike one person per se, it has wide reaching consequences affecting his family and the society / community at large.

This thesis is organized in the following manner. In the second chapter there is a general discussion on why the situation of epilepsy in Nepal has to be even considered as a problem to the community at large and the psychiatrist/neurologist in particular. This is followed by the description of the problem situation and an extensive analysis of the factors responsible for the creation and maintenance of this problem. Then the various consequences of this situation on the patient , his family and the society is elaborated upon. Then all the possible ways that can be used to alleviate this situation and improve it is discussed. This discussion does not encompass all the theoretically possible techniques but is limited to only those that are

relevant to the Nepalese context considering the various constraints (financial and human resources) and the geopolitical situation. It goes on to describe one possible and feasible strategy to address the problem with detailed analysis of how and why this will work, looking into the infrastructural assets and means of bringing about changes in human behavior. The chapter is rounded up with the references used.

Chapter III continues from the chosen strategy in the previous chapter and describes the practical aspects of implementation. It has been sufficiently detailed as it is envisioned that any reader going through this portion should be able to get a clear idea of how to implement the strategy. The technical ground work has been completed in the form of study design, curriculum development, formation of diagnostic guidelines and the treatment protocol to be used. The relevant teaching learning materials have also been outlined together with human resource and technical requirements. The plan of supervision and monitoring is followed by the process of evaluation of the program with expected outcomes and anticipated hurdles. The budget has been calculated for this study program to be implemented in one health post area as a pilot study. It is suggested that this program should be tested in the field before any conclusion is to be made. It is concluded by a discussion of the information and recording system, aspects of sustainability and the ethical issues that will face any implementer of this program.

Chapter IV attempts to test the questionnaire developed to assess the impact made on the patient population by the proposed program. Quality of Life is used as a holistic measure of the ultimate success of the program. In reality, the assessment is to be done as a pre and post intervention measure to gauge the change in QOL that

can be brought about in the patient. The other components of the proposed assessment is to study the increase in patient coverage by the health post where this program is implemented and compare it with another, more or less, identical health post without the program. The decrease and/or cessation of fits will be used as an indicator of the effectively of the program in controlling the disease process. This part has been omitted from the data exercise as these measures do not use any tool as such and consist of analysis of the incoming data when the actual program is implemented.

In the present severe manpower shortage situation in the government health system, specialist care for the epileptics is a distant dream. With a handful of psychiatrists and neurologists, some strategy has to be developed to care for the vast number of epileptic patients in the community. The government health policy has decentralized the care of these patients down to the level of health post keeping in line with the concept of the primary health care incentive. The para clinical manpower of this level has the responsibility to diagnose epilepsy and is empowered to use phenobarbitone on their own decision. The decision to use other antiepileptics is restricted to graduate doctors and specialists. This is maintaining a delicate balance between ethical issues and the basic human right of the people to obtain treatement.

In practice, even this approach is not functioning due to the interaction of various push & pull factors operating at the community level. This study proposes to mobilize the village health workers to decrease the stigma about illness and spread awareness, thereby decreasing the pull factor and enhancing the push factor in epilepsy care from the standpoint of the patient. It also proposes to strengthen and

facilitate the care delivery side of the equation. When this strategy is well tested, this module can be replicated in other health post areas so that increasing numbers of patients are brought under treatment and the existing gap in the care of epilepsy successfully can be reduced to the benefit of all.