

## A STUDY OF EPILEPTIC PSYCHOSES - 150 CASES

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### SUMMARY

One hundred and fifty patients of epileptic psychosis, registered over a period of five years in neuro-psychiatric clinics at NIMHANS were studied. Patients with organic causes which may produce both epilepsy and psychosis were excluded. The epileptic psychosis ratio to epilepsy was 1:23 and the epileptic psychosis ratio to psychosis was 1:75. The mean age at the onset of epilepsy was 19.4 years, while the mean age at the onset of psychosis was 29 years and thus the mean duration of epilepsy at the onset of psychosis was 9.4 years. With regard to type of seizures, 93 (62%) had grandmal, 50 (33.3%) had temporal lobe epilepsy and 7 (4.7%) had partial motor or sensory epilepsy with generalization. With regard to type of psychosis, 64 (42.7%) had post-ictal and/or inter-ictal psychosis, 15 (10%) paranoid schizophrenia, 9 (6%) mania, 2 (1.3%) depression and 60 (40%) unspecified psychoses. The mean duration of epilepsy was significantly less ( $p < 0.05$ ) at the onset of acute psychosis than chronic psychosis. Family history of epilepsy and mental illness, premorbid personality and frequencies of seizures were not significantly associated with pathogenesis of epileptic psychosis.

### Introduction

Intellectual deterioration, personality disorder, hyperkinetic syndrome, neurosis, hyposexuality, aggressive outbursts and psychosis are known to occur in patients with epilepsy. Hypoxic damage to the brain due to seizures, toxic effects of the anticonvulsants on brain, subclinical seizure discharges, frightening nature of auras, restriction of activity, public prejudice towards epileptics, susceptible premorbid personality, are incriminated as possible factors to develop psychiatric disorders (Dongier 1959, Bruens 1974, Scott 1978, Trimble 1985).

About one sixth to one quarter of the epileptic outpatients suffer from conspicuous psychiatric disorders and about 10 per cent have been admitted at some stage to the mental hospitals (Gibbs 1951, Guerrant *et al* 1962). Psychiatric disorders are said to

be more common in temporal lobe epilepsy than in other types (Pond and Bidwell 1960). It is interesting to note that schizophrenic psychosis was associated with sharp waves and other abnormalities in the left temporal lobe whereas patients who show manic depressive psychosis with or without neurotic features have a disturbance in the right temporal lobe in EEG (Flor-Henry 1969). The diminished cerebral blood flow and metabolism especially in frontal and temporal cortices, and basal ganglia has been demonstrated, using positron emission tomography, in epileptics with psychosis as in psychotics (Buchsbbaum *et al* 1982).

The aim of this study is: (1) To study the symptomatology of the psychoses associated with epilepsy, (2) To find out if any particular symptoms cluster in these psychoses and is specific enough to be labelled

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as epileptic psychosis as distinct from other functional psychoses. (3) To know if there is any relationship between type of epilepsy, frequency of fits, premorbid personality, age of onset of epilepsy and duration of epilepsy and psychosis.

### Materials and Methods

One hundred and fifty patients with epilepsy, who developed psychosis during the course of the disease, and registered over a period of five years (1974 - 79) at NIMHANS, constitute the sample of this study. A clinical diagnosis of epilepsy, and presence of severe psychotic symptoms, whose occurrence was after the onset of epilepsy, were the inclusion criteria. Patients with the evidence of underlying causes, which can produce both epilepsy and psychoses were excluded. Detailed neurological and psychiatric examinations were done at the time of their first visit to the neuropsychiatric service and/or during subsequent follow-up visits. Necessary investigations such as carotid angiogram, pneumoencephalogram, EEG, CSF examination and STS were conducted for those patients who were suspected to have such underlying causes.

In this study, the brief remitting confusional psychotic episodes occurring in post-ictal or inter-ictal state were defined as acute psychoses while the prolonged psychotic state without any clinical discernible relationship with the occurrence of seizures were defined as chronic psychoses.

One way classification of analysis of variance was the statistical test employed in the present communication.

### Results

During the five year period, 150 patients with the clinical diagnosis of epileptic psychosis were registered at the neuropsychiatric clinics of NIMHANS. The psychotics registered in the department of

psychiatry accounted for 28 per cent of all the cases registered. The epileptic psychoses accounted for 1.3 per cent of all the psychoses. Out of the patients registered in the departments of neurology and neurosurgery, the patients with epilepsy accounted for 13.6%. The epileptic psychoses formed 4.4 per cent of all epileptics. Out of 150 epileptic psychoses 120 (80%) required hospitalization.

Out of 150 epileptic psychotics, 104 (69.3%) were males and 46 (30.7%) were females. With regard to type of seizures, 93 (62%) patients had grandmal epilepsy, 50 (33.3%) had temporal lobe epilepsy with generalization and 7 (4.7%) had partial motor or sensory epilepsy with generalization.

Out of 150 patients, 64 (42.7%) had post-ictal and/or inter-ictal psychosis (mean duration of this psychosis was 8 days), 15 (10%) paranoid schizophrenia, 9 (6%) mania, 2 (1.3%) depression and 60 (40%) schizophreniform and other unspecified psychoses. The family history of psychosis and epilepsy were present in 6 (4%) and 1 (0.7%) patients respectively. Premorbid personality was reported to be normal in 127 (84.7%) patients. Marked irritability was reported in 14 (9.3%) patients, social aloofness in 7 (4.7%), extrovert tendencies in 1 (0.7%) and passive dependent traits in 1 (0.7%).

The distributions of age at onset of epilepsy and psychosis and duration of epilepsy at the time of onset of psychosis are presented in Table 1. The mean age at onset of epilepsy was 19.4 years while the mean age at onset of psychosis was 29 years and the mean interval between onset of epilepsy and psychosis being 9.6 years.

The mean duration of epilepsy is shown for each type of psychosis in Table 2. The mean duration of epilepsy was significantly less ( $P < 0.05$ ) in patients with acute epileptic psychosis than in chronic epileptic psychosis.

Table - 1  
Distribution of patients by age at onset of epilepsy and psychosis and duration of epilepsy at the onset of psychosis

	No.	%	
<b>Age (in years) at onset of epilepsy</b>			
5-10	27	18.0	
10-20	63	42.0	
20-30	34	22.7	
30-40	19	12.7	
40-48	7	4.7	
<b>Age (in years) at onset of psychosis</b>			
14-20	25	16.7	
20-30	62	41.3	
30-40	39	26.0	
40-55	24	16.0	
<b>Duration (in years) of epilepsy at onset of psychosis</b>			
<3	3 years	26	17.3
3-5		24	16.0
5-7		15	10.0
7-9		27	18.0
> 9-		58	38.7

Table - 2  
Duration of epilepsy in different types of psychosis

Types of psychosis	No.	%	Mean duration in years
Postictal and interictal psychosis	64	(42.7)	7.2
Paranoid Schizophrenia	15	(10)	13.3
Manic	9	(6)	14.7
Depressive	2	(1.3)	5.5
Schizophreniform and other unspecific psychosis	60	(40)	10.5

Routine blood and urine analysis, STS, and x-ray skull and chest were normal in all cases. CSF examination was done in 17 patients and the analysis was normal. The an-

giogram and pneumoencephalogram were done for 4 and 2 patients respectively and the results were normal.

EEG was done in 20 (13.3%) patients and 6 (30%) were normal. One record showed unilateral and two bilateral temporal lobe focus. In the remaining 11 (55%) the changes were non-specific. It was surprising that generalised seizure discharges were not seen in any of the records of 20 patients.

### Discussion

Varying inclusion and exclusion criteria for epileptic psychosis and difference in the methods make it difficult to compare the results of different studies to come to a definite conclusion. The criteria for selection of patients with epilepsy and psychosis for the present report were more stringent as compared to the study by Slater *et al* (1963). The latter study included even those patients with past history of closed head injury, middle ear infection, encephalitis etc., and such cases formed 40 per cent of the study sample. Similarly, 11 out of their 69 patients who underwent temporal lobectomy revealed lesions like neoplasm, dermoid cyst, tuberous sclerosis etc. In such a sample, it would always remain debatable whether the psychosis was related to epilepsy or epilepsy as well as the psychosis were due to a common cerebral pathology. The present study, by excluding all such cases by history, neurological examination and relevant investigations, is an improvement in methodology compared to the study by Slater *et al* (1963).

Out of 3,449 patients with epilepsy, there were 150 cases of epileptic psychosis in this series, making the epilepsy to epileptic psychosis ratio to 23:1. Taking into consideration the acute and chronic epileptic psychosis separately the ratio becomes 1:54 and 1:40 respectively. However, Bartlett (1957) found only 12 cases

of chronic epileptic psychosis among 1073 epileptics, the epilepsy to epileptic psychosis ratio being 1:89. Bruens (1971) found 17 cases of chronic epileptic psychosis in 720 epileptics, epilepsy to chronic epileptic psychosis ratio being 1:42, which was quite consistent with the findings of the present study.

In the present series 62% of the patients experienced grandmal epilepsy and only 33 per cent temporal lobe epilepsy. This is against the commonly reported findings where psychotic states have been found predominantly in TLE. The present study found 40 per cent unspecified psychotics and 42.7 per cent postictal and interictal psychotics, suggested, that in grandmal epilepsy the picture of psychosis may be unspecified whereas in TLE one may come across well differentiated paranoid, manic or depressive psychosis.

In the present study there was no statistically significant relationship between frequency of seizures and development of epileptic psychosis which was in accordance with other studies (Dongier 1959, Flor-Henry 1969, Scott 1978, Slater *et al* 1963). The difference in mean age at onset of epilepsy and chronic epileptic psychosis corresponded closely with the mean duration of 11 to 14 years as mentioned in various studies (Bruens 1971, Slater *et al* 1963). A rather interesting finding in the present study was that the mean duration between onset of epilepsy and acute epileptic psychosis was also 7.2 years.

In chronic epileptic psychosis, the commonest clinical presentation was like that of chronic undifferentiated psychosis. In majority of the studies the common clinical presentation was like that of paranoid schizophrenia. The multitude of symptoms shown in the present series contradicted the views of Firnhaber and Ardjoumandi (1968), according to whom the psychotic symptoms of epileptic psychosis were so

specific that a diagnosis can be made even if the history of epilepsy was not available.

It would be interesting to know whether the paranoid, depressive and manic symptoms found in 64 cases grouped under postictal and interictal confusional state develop similar type of chronic psychosis during follow up.

It is worth studying epileptic psychosis, after excluding organic causes by detailed investigations and comparing their EEG findings and biochemical changes in CSF, with age and sex matched epileptics without psychosis and functional psychosis.

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