ORIGINAL ARTICLE

Chronic Schizophrenia-like Psychosis in Patients with Epilepsy

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Summary

A cross sectional study of 61 epileptic patients with a diagnosis of schizophrenia-like psychosis was undertaken. The aim of this study is to compare those patients who were still psychotic despite medication and those who were in remission. This study showed no significant difference between the two groups in terms of sociodemographic characteristics, frequency of epilepsy, electroencephalographic (EEG) findings and anticonvulsant level. There was significantly more psychopathology in the group of schizophrenia-like psychosis with underlying mental retardation than those without.

Key Words: Schizophrenia-like psychosis, Epilepsy

Introduction

The theory that epilepsy protected against psychosis led to the use of convulsive therapy in psychotic patients in 1930s, but more recently it has become apparent that a chronic schizophrenia-like psychosis occurs more often than not[1,2]. Slater *et al*[3] suggested that the occurrence of epilepsy and psychosis is not a coincidence. Two-thirds had temporal lobe dysfunction, the psychosis developed about 14 years after the onset of the fits. All of the cardinal symptoms of schizophrenia were seen at some point in time in his series of patients with epilepsy. Delusions, hallucinations and paranoid states were common psychopathological findings and the patients did not show typical schizophrenic deterioration[4]. Furthermore, familial schizophrenia or schizoid pre-morbid personality were relatively rare. Patients with chronic schizophrenia-like psychosis tend to follow a chronic course once diagnosis has been established. Chronic schizophrenia-like psychosis has been regarded as a symptomatic schizophrenia due to temporal lobe dysfunction, a view generally accepted since[2]. Chronic schizophrenia-like psychoses have been frequently described in the literature but in clinical practice, it is uncommon[3].

The aim of this study is to compare the epileptic patients with schizophrenia-like psychosis who were still psychotic despite antipsychotic therapy and those who were in remission, in terms of sociodemographic characteristics, frequency of epilepsy, EEG findings and anticonvulsant level.

Method

This is a cross sectional study of all the cases diagnosed as chronic schizophrenia-like psychosis, as described by Lishman[1], in Hospital Permai from September to November 1994. The source of information was from case records and medical assistants looking after the subjects. The case records of the patients since their first admission was available. Information acquired from the case records was sociodemographic data of the samples and family history of mental illness. We also obtain the documentation of the episodes of fits from the case records. All other information was obtained from the clinical interview by the first author, looking into history,

mental status examination and cognitive functions of the patients. As such, the case records provided reliable information when limited to such information only.

As for the diagnosis of mental retardation, it was based on social and physical accomplishment of the patients in the ward. It also took into account an individual's motor, perceptual and psycholinguistic skills as assessed by the first author. A detailed account of the patients' capacity to cope with daily activities in the ward and rehabilitation programme was also taken into consideration. A thorough assessment on the cognitive functions was also done by the first author. However, a formal IQ test was not carried out as there was no clinical psychologist available in the hospital. The assessment was a continuous process for the three months and documentation in the case record with the constellation of strength and weaknesses. The diagnosis of mental retardation in this sample is based on clinical assessment as well as nurses' and occupational therapists' observations throughout the patients' stay in the ward, with a minimum duration of observation of three months. As such, the diagnosis of mental retardation is open to question. Although criterion A of DSM IIIR requires a significantly subaverage general intellectual functioning on an individually administered IQ test, criterion B also mentions that there must be a concurrent deficits or impairment in adaptive functioning and this was looked into in this study. The information from the nurses is reliable as there had been one nurse in charge who had observed the patients over a long period of time.

Table I
Sociodemographic characteristics

	psychotic (n=46)	remission (n=15)	p
Sex			
Male:	24	15	
Female:	22	0	0.002
Age (years) (current):			
Range:	21-59	33-54	
Mean:	39	43	NS
Age at admission (year)	26	28	NS
Race:			
Malay:	15	8	
Chinese:	21	5	
Indian:	10	2	NS
Duration of stay (year):			
Range:	1-31	1-32	
Mean:	13	16	NS
Social support:			
Present	8	3	
Absent	38	12	NS
Occupation before admission			
Unemployed:	46	15	NS
Family history of schizophrenia:	0	0	

Psychosis here is defined as the presence of positive symptoms of schizophrenia, eg. hallucinations, delusions, etc. which is persistent in between each episodes of fit. Remission refers to patients who were symptom free for past three months. The subjects were reviewed by the ward doctor weekly. Mental status examination and psychopathology was elicited by Brief Psychiatric Rating Scale (BPRS)[5] by the first author for all the 61 cases. The BPRS contains 11 items to be rated mainly via verbal report; and five items based mainly on observed behaviour. Each item is scored on a 7-point scale at the end of the suggested 18-minute interview. It is recommended for use with psychiatric in-patients, particularly psychotic or long-stay in-patients[6]. A score of 3 on each item and a total BPRS score of 20 was significant. Chi-square and t-test was used for statistical analysis.

Results

Of the total of 61 patients reviewed, 46 patients were still psychotic (mean BPRS score of 16) and on antipsychotics (dose range equivalent to Haloperidol 5 to 60 mg/day). The mean duration of antipsychotic therapy was 8 years. The other 15 patients were in remission (mean BPRS score of 9) and not on antipsychotics.

The demographic characteristics is shown in Table I. There were no females in the group of patients who were in remission. A point to note is that this group of patients were institutionalised in a mental institution and the mean period of hospital stay was 13 years (range from 1 to 31 years). This is not representative of the epileptic population at large.

With regard to frequency of epilepsy, well controlled epilepsy was defined as being fit free for more than one year prior to being examined. Twenty-six of the psychotic group were well controlled while twenty were poorly controlled. Of those in remission, nine were well controlled while six were poorly controlled. There was no difference between the parents who were still psychotic and in remission in terms of frequency of epilepsy (Chi-square=0.04, d.f.=1, p=0.95).

The mean BPRS score for the well-controlled group was 14 and the poorly-controlled group was 18 and there was no statistical difference in the BPRS scores between the two groups.

Among patients with well controlled epilepsy, twenty-three of the psychotic group had anticonvulsants within therapeutic range while 3 were subtherapeutic. There were 7 subjects from the remission group who had therapeutic levels while 2 were subtherapeutic. There was no difference in the anticonvulsant level between the patients who were psychotic and in remission who had well-controlled epilepsy (Fisher exact probability: p value = 0.91).

As for patients with poorly-controlled epilepsy, 18 of the psychotic group had anticonvulsants within therapeutic range while 2 were subtherapeutic. There were 5 subjects from the remission group who had therapeutic level while one was subtherapeutic. There was no statistical difference in the drug level between the psychotic and remission groups who had poorly-controlled epilepsy (Fisher exact probability: p value = 0.88). None of the patients had an anticonvulsant concentration at a toxic level.

Abnormal EEGs were found in 9 of the psychotic group and three of the remitted group, while three each had normal EEGs from the psychotic and remission group. There was no difference in the EEG findings between the patients who were psychotic and in remission (Fisher Exact Probability: p value = 0.29).

In this study, a diagnosis of mental retardation was done based on clinical assessment and ward observation. A formal IQ test was not done because of unavailability of clinical psychologist. The mean BPRS scores of patients with clinical mental retardation was 23 and those without was 11. There were significantly more patients with mental retardation scoring more than 20 on the BPRS than those without. There was no difference in the two groups in conceptual disorganisation, grandiosity, suspiciousness, hallucination, unusual thought disorder.

Discussion

This is a follow-up from the earlier study on the characteristics and clinical features of patients in the epileptic psychosis ward, Hospital Permai Tampoi[7]. It

Table II
BPRS scores between well- and poorly-controlled epilepsy in patients who were still psychotic

	*well-controlled (n=26)	poorly-controlled (n=20)	p
BPRS Scores			
Score 20 & above	7	9	NS
Conceptual disorganisation	10	11	NS
Grandiosity	0	0	NS
Suspiciousness	0	0	NS
Hallucinatory behaviour	2	5	NS
Unusual thought content	4	2	NS

**fit free for more than one year*

Table III
Correlation between mental retardation and BPRS scores and frequency of epilepsy in patients who were still psychotic

	Epileptic psychosis without mental retardation (n=27)	with mental retardation (n=19)	p
Epilepsy			
Well-controlled	16	10	
Poorly-controlled	11	9	
BPRS			
Score 20 & above	5	11	0.006
Conceptual disorganisation	9	12	NS
Grandiosity	0	0	NS
Suspiciousness	0	0	NS
Hallucination	2	5	NS
Unusual thought disorder	4	2	NS

**Significant at 5% level*

aims to compare the group of epileptic patients who were still psychotic with adequate duration of antipsychotic and anticonvulsant therapies and those who were in remission. Of the total of 61 patients with schizophrenia-like psychosis, 46 patients were still psychotic and 15 were in remission. This corresponds to previous findings that some 'epileptic psychosis' do achieve remission[1]. However, in the remitted group, 10 (66.7%) patients showed psycho-organic sequelae in the form of perseveration, dullness and retardation. Lishman[1] suggested that the chronic schizophrenia-like illness had often merely been one phase in the total

course of the illness, with later development towards a picture more characteristic of organic cerebral disorder. In this sample, the clinical picture of perseveration, dullness and retardation could also be attributed to institutional neurosis as this was a group of chronic inmates in a mental hospital. Vernon *et al* suggested that schizophrenia-like psychosis in epilepsy do not appear to have the negative features of schizophrenia[7].

There was no difference in the social demographic characteristics between the two groups. None of the patients had a family history of schizophrenia in this study. This corresponded to previous findings[1].

Further analysis showed no difference in the frequency of epilepsy between the two groups. Similarly, this study showed no difference in the BPRS scores in the psychotic groups who had well- and poorly-controlled epilepsy. A study by Slater showed no clear association between fit frequency and schizophrenia-like psychosis[1]. The relationship between epilepsy and psychosis has been somewhat controversial and has given rise to two major theories. One is the antagonistic theory and the second is the affinity theory. The antagonistic theory argues that epilepsy and psychosis are opposite sides of the pole, that psychosis is more likely to occur when the epilepsy is well controlled, and that poor control of epilepsy is not associated with psychosis. The affinity theory is based on epidemiological studies showing a substantially and significantly increased incidence of psychoses in epileptics compared with what would be expected by chance[1]. 'Forced normalisation', a concept introduced by Landolt (1958) and recently reviewed by Wolf (1991), refers to the electroclinical syndrome of an inverse relationship between fits frequency and mental state in recurrent epileptic psychoses; the psychoses being associated with fewer fits and EEG normalisation, and a normal mental state with more fits and EEG 'deterioration'. This syndrome is rare but its validity has been confirmed by intensive EEG video monitoring[2]. No simple temporal relationship between schizophreniform episodes and the electrical activity associated with epilepsy has emerged, making argument for the specificity of the schizophrenia-like psychoses of epilepsy even more problematic[3].

In this study, therapeutic drug monitoring for anticonvulsant was done using Fluorescence Polarization Immunoassay technique in the Therapeutic Drug Monitoring Unit, Hospital Sultanah Aminah, Johor Baru. All the blood samples was taken in the morning before the next dose of anticonvulsant was served. This study showed no difference in the anticonvulsant level between the patients who were psychotic and in remission.

Of the 61 patients studied, 12 of the psychotic and 6 of the patients in remission had an EEG (electroencephalography) done in Hospital Sultanah Aminah, Johor Baru. The EEG was interpreted by a neurologist. Among the 12 psychotic patients with EEG done, 9 had an abnormal EEG, 2 had non specific EEG findings and one had normal EEG. Among the abnormal EEG findings, one secondary generalised epilepsy, 8 had partial epilepsy of which 3 had origin in the temporal lobe. Among six remitted patients with EEG done, 3 had abnormal EEG, one had non specific EEG finding and 2 had normal EEG. There was no difference in the EEG findings between the patients who were still psychotic and those in remission in this study at 5% level.

The over-representation of temporal lobe epilepsy among Slater's psychotic patients was probably the most crucial finding of his study[3]. Critics of this apparent association have stressed biasness of sampling. Slater's own sample of people with epilepsy was relatively elderly, ensuring that complex partial seizures would be over-represented. Furthermore, Slater's centre is a mental institution and referral centre, this factor attracts disproportionate numbers of patients having either temporal lobe epilepsy or psychopathology, making the combination of the two untypically common.

There was significantly more psychopathology in the group of schizophrenia-like psychosis who had underlying mental retardation than those without mental retardation. This could be due to the use of Brief Psychiatric Rating Scale in the mentally retarded as the BPRS depends mainly on patient's verbal report as well as observed behaviour in the ward, two variables which are difficult to rate in the mentally retarded. However, the epileptic-psychotic relationship may be related to the

organic mental syndrome, ie. mental retardation. The more severe the mental retardation, the higher the occurrence of epilepsy and psychosis[7].

This is a cross-sectional study and its limitations were recognised. The sampling was done from all the patients who were placed in an epileptic ward in a mental institution. This was a special group with poor prognostic factors. Other limitations include the small sample size especially in the patients who had anticonvulsant monitoring and EEG done. Another limitation was the use of case records to obtain information as these patients mostly do not have any social contact to supplement relevant information.

Future studies on the relation between epilepsy and psychoses should look into (a) relationship between organic findings and psychosis; (b) diagnosis of schizophrenia-like psychosis; (c) temporal relationship between development of psychoses and epilepsy. The diagnosis of mental retardation should also be strengthened with the use of formal IQ test.

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