

The Nature and Structure of Febrile Psychosis in the Sudan

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Abstract

The nature and structure of febrile onset psychosis, primarily malaria, in the Sudan were investigated. At least a third of the patients exhibited one or more of the following: excitement, aggressiveness, sleep disturbance, auditory hallucinations, visual hallucinations, paranoid/delusional, disorganized thinking and disorientation. Other notable symptoms were depression, not eating mutism, and catatonia. Factor analysis revealed a schizophreniform deterioration factor, a schizophrenia versus mania factor, a depression factor, a toxic psychosis factor, and an aggression factor. The diagnostic implications for the diversity of symptomatology in febrile onset psychosis were discussed.

Introduction

The purpose of the present study was to ascertain the symptom constitution and symptom complex in febrile onset psychosis in the Sudan. The research follows a study of Awadalla, Templer, Canfield and Stokes¹ on schizophrenia in the Sudan in which it was found that 33 (15%) of their patients had febrile illness onset. The febrile illness was malaria in most of the cases. The findings of the Awadalla et al¹ study are in the context of there being very little in the English language literature about psychiatric hospitalization for febrile illness onset psychosis. Sowunmi² reported two cases of cerebral malaria associated psychosis in children in Nigeria. Steinberg, Hirsch and Marston³ reported a case of influenza febrile onset manic psychosis. Schwartz⁴ reported a case of Q fever febrile

onset manic psychosis. The present study goes beyond the previous literature because of the large number of patients, because it takes place in a country in which malaria and other categories febrile illnesses are relatively common, and because of the emphasis on quantification that includes factor analysis. It goes beyond the Awadalla et al¹ study not only because of the larger number of cases of febrile onset psychosis, but because it is not restricted to patients given a schizophrenic diagnosis.

Method

The records in the psychiatric units of three different psychiatric inpatient facilities in the Sudan were reviewed by the senior author to locate psychosis with febrile onset. Seventy-eight such cases were found. In 51 cases the fever was associated with malaria, in 8 cases malaria plus typhoid, in 4 cases typhoid, in 1 case malaria plus dysentery, in 1 case malaria plus beltharthia, and in 13 cases the disorder associated with the fever was not specified. The more common psychiatric symptoms in each case were recorded and counted. In regard to psychiatric diagnosis, 45 patients received a diagnosis of toxic psychosis, 5 toxic psychosis and schizophrenia, 4 toxic psychosis with schizophreniform character, 3 psychotic disorder NOS, 3 manic-depressive disorder, 2 schizophrenia, 2 toxic psychosis with schizophrenic disorder, 2 acute reactive psychosis, and 1 each for schizophreniform disorder, toxic psychosis with catatonic schizophrenia, toxic psychosis and manic depressive disorder and schizo affective disorder, major depressive disorder with psychotic features, toxic psychosis with manic-depressive disorder, toxic psychosis and manic depressive disorder

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Table 1. Most common symptoms and number of patients with each.

Symptom	# Patients	(%)
Hyperactivity/excitement/restlessness/pressure of speech	45	(60.0)
Aggressiveness/violence/anger/irritability/destructiveness	41	(54.7)
Sleep disturbance/nightmare/insomnia	39	(52.0)
Auditory hallucinations	39	(52.0)
Visual hallucinations	34	(45.3)
Paranoid/delusional	32	(42.7)
Disorganized thinking	27	(36.0)
Depression/crying/suicidal	23	(30.7)
Not eating	23	(30.7)
Mutism	10	(13.3)
Catatonia	4	(5.3)

Table 2. Factor analysis summary.

Item	Factor Loading				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Age	.17	-.09	.07	.17	.60
Aggression	.24	.03	.13	.16	-.61
Auditory hallucinations	.24	-.77	-.20	.03	.08
Catatonia	-.71	.23	-.01	.08	.06
Delusion/paranoid	.57	-.13	.28	-.08	-.28
Depression	.28	.05	.65	-.14	.20
Eating	-.08	.20	.62	-.17	.22
Gender	.10	.19	-.58	-.00	.12
Hyperactive	.09	.71	-.15	-.01	-.02
Mutism	-.77	-.20	.14	-.09	-.10
Disoriented	-.21	.11	.20	.76	-.12
Sleep difficulty	-.04	.05	.24	-.09	.62
Disorganized thinking	.38	.34	-.16	.44	.15

and schizophrenia. There were 6 patients who did not receive any psychiatric diagnosis.

Results

Table 1 (above) contains the most common symptoms and the number of patients who had these symptoms reported in their charts. An orthogonal factor analysis with

varimax rotation was performed with the above 12 symptom variables and age and gender. There were 5 factors that had an eigenvalue greater than 1. The factor loadings are contained in Table 2 (above). Factor 1 had an eigenvalue 1.94 and accounted for 13.9% of the variance. Its highest loadings were with mutism, catatonia

and paranoid/delusional. It was labeled "schizophreniform deterioration." (It is well established that there is a continuum of functioning in schizophrenia with the paranoid schizophrenic at one end of the continuum tending to have better cognitive and behavioral functioning than the catatonic at the other end).⁵ Factor 2 had an eigenvalue of 1.94 and accounted for 11.6% of the variance. Its highest loadings were with auditory hallucinations and hyperactivity. It was labeled "schizophrenia versus mania." Factor 3 had an eigenvalue of 1.49 and accounted for 10.6% of the variance. Its highest loadings were on depression, not eating and gender. It was labeled "depression." Factor 4 had an eigenvalue of 1.37 and accounted for 9.8% of the variance. Its highest loadings were on disorientation and visual hallucinations. It was labeled "toxic psychosis." Factor 5 had an eigenvalue of 1.24 and accounted for 8.8% of the variance. Its highest factor loadings were with sleep disturbance, aggression, and age. It was labeled "aggression."

Discussion

Both the 12 symptoms and the factor analysis of these symptoms points to a diversity of symptoms in febrile onset psychosis. Factor 4 is dominated by disorientation and visual hallucinations and seems to represent the classical toxic psychosis. A schizophrenic theme is well represented by auditory hallucinations, paranoid/delusion, mutism, and thought disorganization. Such schizophreniform symptoms are dominant on factor 1 and factor 2. The most common two

symptom complexes, excitement and aggression, can be seen in mania. Thus, the limited previous literature on febrile psychosis that mentions not only the classical toxic psychosis syndrome but schizophrenia and manic characteristics gains support from the present research. An implication of the present findings is that clinicians should be cognizant of the fact that febrile psychosis can produce an array of symptoms and can stimulate the so called "functional psychoses." These findings have implications not only for the tropical and developing regions where malaria and other categorized febrile illnesses are common, but in other regions where clinicians may be less attuned to perceiving a connection between fever and psychosis. In developing countries nutritional deficiency is more likely to complicate the diagnostic situation.

References

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