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Clinical Science

EXCESSIVE DAYTIME SLEEPINESS IN PATIENTS PRESENTING WITH FIRST EPISODE SCHIZOPHRENIA IN NIGERIA

KEY WORDS: Excessive daytime sleepiness; Schizophrenia; Positive and Negative Syndrome Scale; Epworth Sleepiness Scale; Nigeria.

Celestine O. Mume

Bsc, MBChB, MSc, FMCPsych Department of Mental Health, Faculty of Clinical Sciences, Obafemi Awolowo University, Ile – Ife, Osun State, Nigeria - Corresponding Author

ABSTRACT

Background and objectives: Insomnia is a recognized symptom of many psychiatric disorders. This has become so established that in a clinical setting it would be unprofessional to take a history of psychiatric disorders without an enquiry into the subjective sleep pattern of the patients with a view to establishing the presence or absence of insomnia. Unlike insomnia Excessive Daytime Sleepiness (EDS) is hardly given any attention in the clinical evaluation of patients. It has however been found to be associated with a number of psychopathological situations and in a reasonable proportion of cases, EDS correlated significantly with the degree of psychopathology. The objectives of this study were to determine the prevalence of EDS in a sample of patients with first episode schizophrenia in a Nigerian Teaching Hospital and to determine whether there is a relationship between EDS and the severity of schizophrenia in them. Another objective of the study was to examine for a possible relationship between EDS and the duration of symptoms in those subjects with first episode schizophrenia.

Materials and methods: seventy – eight consecutive patients with first episode schizophrenia were recruited from the Psychiatric Outpatient Clinic of Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC). The diagnosis was based on the criteria of the 10th edition of the International Classification of Diseases (ICD - 10) by the World Health Organization (WHO). The Positive and Negative Syndrome Scale (PANSS) was used to evaluate the severity of their symptoms while EDS was measured using the Epworth Sleepiness Scale (ESS). The subjects were also required to indicate the duration of their symptoms.

Results: Seventy – one out of the 78 subjects (91.0%) provided complete data. The mean age of the subjects was 27.2 years (SD = 4.2) while the mean age of duration of illness was 3.7 years (SD = 1.5). The range of scores on the PANSS was 76 – 134 with a mean score of 100.0 (SD = 9.7) while the scores on ESS ranged from 7 – 17 with a mean of 10.9 (SD = 2.4). EDS defined as ESS score \geq 10 was present in 67.6% of the subjects.

EDS had a high, significant and direct relationship with PANSS score (correlation coefficient 0.79, $p < 0.001$), there was no significant relationship between EDS and duration of illness while there was a mild direct relationship between duration of illness and PANSS score (correlation 0.30, $p < 0.05$). PANSS score (symptom severity) accounted for 61% of the variance of EDS by virtue of their linear relationship.

Conclusion: The prevalence of EDS is very high among the study group. This study has also shown that the EDS correlated positively with the severity of schizophrenia. In the pharmacological management of such patients, it may be advisable to reserve drugs with high sedative property for the night and use relatively less sedative drugs during the day.

Introduction

Schizophrenia is a serious psychiatric disorder with onset typically in adolescence and early adulthood and with a lifetime prevalence of about 1% in the general population (1). It is heterogeneous in terms of etiology, pathophysiology and clinical presentation (2). This heterogeneity was implied when Bleuler (1911/1950) used the term "group of schizophrenias" (2). Efforts to treat schizophrenia as a single homogeneous entity do not appear to have been successful. At present the World Health Organization talks of subtypes such as paranoid, catatonic, hebephrenic and simple schizophrenia (3). At various times investigators have emphasized Positive and Negative Symptoms of schizophrenia and Type I and Type II schizophrenia (2, 4). Schizophrenia is a major public health problem; constitutes a major challenge to clinicians and often results in great suffering for both patients and their care – givers.

Excessive daytime sleepiness (EDS) is a situation in which individuals have increased tendency to fall asleep in places and at times they are reasonably expected to be awake and alert. Excessive Daytime Sleepiness (EDS) has been found to be associated with general psychopathology (5). It has also been found to be common among depressed patients prior to the commencement of medication (6). In both of these cases EDS correlated significantly with the degree of general psychopathology and depression.

Reduced nocturnal sleep duration has been shown to be a risk factor for EDS (5,7). Many psychiatric disorders including schizophrenia are associated with insomnia. Neuroleptic medications have long been the major component of effective treatment for schizophrenia (8,9,10). It is also true that many neuroleptics have sedative / hypnotic properties and therefore a high tendency to cause EDS (11). In Nigeria, studies on EDS across the different psychopathological spectrum are few. It was thus important to investigate patients suffering from schizophrenia for possible EDS in order to provide information that will be of use for

subsequent research and management of patients. The rationale for including only subjects with first episode schizophrenia was to be sure that subjects who had been exposed to neuroleptics were not included in the study.

The present study aimed at determining the prevalence of EDS in a sample of patients with first episode schizophrenia and to determine whether there is a linear relationship between EDS and the severity of schizophrenia in them. The study further aimed at determining whether there is a linear relationship between EDS and the duration of symptoms in the same group of subjects.

Materials and Methods

The Setting of the Study and Ethical Consideration

Approval for this study was obtained from The Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile – Ife, Nigeria. The participants were the patients who presented with first episode psychotic disorder in the Psychiatry Outpatient Clinic of OAUTHC and were diagnosed to be suffering from schizophrenia based on the criteria of the 10th edition of the International Classification of Diseases (ICD - 10) by the World Health Organization (WHO). Written informed consent was obtained from all those who took part in the study. It was a cross – sectional study.

Instruments

The Epworth Sleepiness Scale (ESS)

The Epworth Sleepiness Scale (ESS) was developed by Murray Johns in Epworth Hospital in Melbourne, Australia (12). It is a widely used well validated, 8 – item subjective sleep questionnaire. It is frequently used to evaluate individuals for EDS. The subjects are asked to score their likelihood of falling asleep in eight different situations. The range of score is from 0 to 24, with higher scores indicating greater likelihood of sleepiness. An individual who scores 10 – 17 on ESS is considered sleepy, while a score \geq 18 is considered very sleepy. A score of 10 or above is indicative of EDS.

The Positive and Negative Syndrome Scale (PANSS)

The Positive and Negative Syndrome Scale (PANSS) originated from a growing need to reduce the heterogeneity of what was known about schizophrenia (13). Since its development by Kay et al (14), it has remained one of the most widely used methods for standardized measurement of schizophrenic core symptoms. The PANSS is a 30-item rating scale. It consists of 7 positive symptoms, 7 negative symptoms and 16 general psychopathology items. All 30 items are rated on a 7- point symptom severity scale, ranking from 1 (absent) to 7 (extremely severe), thus the higher the score, the greater the severity of the schizophrenia. One feature of PANSS is that somebody who does not have any mental illness will score 30. The range of possible scores is 30 to 210.

Procedure

A total of seventy – eight consecutive patients were recruited from the Psychiatric Outpatient Clinic of OAUTHC. The subjects were asked to provide information on their age, sex and marital status. They were also required to indicate the age at which they were when the illness started and the duration of the illness. The PANSS was administered on them to determine the severity of their illness and they were evaluated for EDS with the ESS.

Statistical Analysis

The data were analyzed using the SPSS Version 20. Regression analysis was done with ESS scores as the Dependent Variable. The Independent Variables were PANSS score and duration of illness.

Results

Seventy – one out of the 78 subjects who participated in the study (representing 91.0%) provided complete data. The other participants were excluded from the analysis. Twenty – nine out of the 71 subjects (40.8%) were males while 42 (59.2%) were females. Twenty – five of the subjects (35.2%) were married while 46 of them (64.8%) were in the group of single, separated, divorced and widowed.

The mean age of the subjects was 27.2 years (SD = 4.2) The mean age of onset of the illness was 23.6 years (SD = 4.0) while the mean age of duration of illness was 3.7 years (SD = 1.5). The range of scores on the PANSS was 76 – 134 with a mean score of 100.0 (SD = 9.7) while the scores on ESS ranged from 7 – 17 with a mean of 10.9 (SD = 2.4). EDS defined as ESS score \geq 10 was present in 48 out of the 71 subjects. This represented a prevalence of 67.6%. The detailed characteristics of the subjects are shown in Table 1.

Table 1: Sample Characteristics (N = 71)

Variable	Range	Mean	SD
Age (years)	21 - 39	27.2	4.2
Age of onset of illness (years)	18 - 33	23.6	4.0
Duration of illness (years)	1 – 6.5	3.7	1.5
Positive Symptoms	21 – 34	26.4	3.6
Negative Symptoms	18 – 41	29.7	5.9
General Psychopathology	27 -82	43.9	8.1
PANSS (Total) Score	76 - 134	100.0	9.7
ESS Score	7 -17	10.9	2.4

On multiple linear regression model, EDS was the dependent variable while total PANSS score and duration of illness were the independent variables. The correlation between EDS and PANSS score (r1) was 0.79 (p < 0.001) ; the correlation between EDS and duration of illness (r2) was 0.19 (p = 0.052) while that between duration of illness and PANSS score (r3) was 0.30 (p < 0.05). These are interpreted to mean that EDS had a high, significant and direct relationship with PANSS score; there was no significant relationship between EDS and duration of illness while there was a mild direct relationship between duration of illness and PANSS score. The correlation coefficient among EDS, PANSS score and duration of illness (R) was 0.79 (p < 0.001), R square was 0.62 and Adjusted R Square was 0.61. This showed that PANSS score and duration of illness accounted for 61% of the variance of EDS by virtue of their linear relationship. The results of the regression analysis are shown in Table 2.

Table 2: Values for Regression Analysis with ESS score as Dependent Variable; PANSS score and Duration of illness as Independent Variables

Variable	Value
Correlation	
r1	0.79 (p < 0.001)
r2	0.19 (p = 0.052)
r3	0.30 (p < 0.05)
Model Summary	
R	0.79
R Square	0.62
Adjusted R Square	0.61
ANOVA	
df	2, 68
F	55.84
Significance	p < 0.001

The correlation between EDS and PANSS score is denoted by r1; the correlation between EDS and duration of illness is denoted by r2 while that between duration of illness and PANSS score is denoted by r3. The correlation among EDS, PANSS score and duration of illness is denoted by R.

Discussion

A very significant finding of this study is the high prevalence of EDS (67.6 %) among the participants. To the knowledge of the author, no previous study has documented such high prevalence rate of EDS among patients suffering from schizophrenia. In previous studies, EDS has been found in association with general psychopathology and depressive episode. For instance in a recent study among Nigerian university students, 11.2% of them were found to have excessive daytime sleepiness (5) and this correlated with the degree of general psychopathology in them. Similarly 44.8% of depressed patients in one study (6) and 57.2% in another study (15) had EDS.

Another important finding is the high degree of association between EDS and the severity of schizophrenia as measured with PANSS. With the correlation between EDS and PANSS score (r1) as 0.79 (p < 0.001) and the multiple correlation (R) also as 0.79, it is clear that duration of illness did not make a significant contribution to the 61% of the variance accounted for by virtue of linear relationship between EDS and the severity of schizophrenia as measured with PANSS.

Sleep complaints are common in patients with schizophrenia (16). The initial tendency is for the clinician to have a high index of suspicion for insomnia but EDS may be a major symptom in this group of patients. Even when there is significant improvement in the symptoms of schizophrenia, many patients suffering from the disorder continue to deteriorate in their occupational and social functions. It is thus agreed that treatment of schizophrenia goes beyond symptomatic control to include improvement in social functioning, quality of life, and satisfaction with life (17). The presence of unrecognized EDS is likely to defeat this objective. There is thus a need to adequately evaluate patients for EDS at the commencement of treatment. The fact that EDS occurs in individuals who are not grossly sick but with evidence of general psychopathology and its high correlation with the degree of illness may mean that it may be a fore – runner of psychopathology. In a particular study both insomnia and EDS were found to be significant predictors of clinical high risk for psychosis (18).

In the light of the foregoing, one cannot but concur with Hawley (19) that EDS has become a relevant focus for clinical attention and treatment in psychiatry. EDS has received little attention in psychiatry but it is clear that it is a major problem which should be investigated. Though the evidence is scanty, the conclusions are that EDS may be potentially amenable to treatment (19).

Conclusion: There is a very high prevalence of EDS among the study group of patients suffering from schizophrenia. The EDS correlates highly and positively with the severity of schizophrenia. Further studies with larger sample sizes as well as multicenter studies are advocated in order to possibly replicate the findings in

this study. In the pharmacological management of such patients, it may be advisable to use drugs with high sedative property at night and use relatively less sedative drugs during the day.

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