

Pharmacoepidemiological survey of schizophrenia in a tertiary care teaching hospital

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Received: 21 January 2019

Revised: 28 February 2019

Accepted: 14 March 2019

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ABSTRACT

Background: Prevalence of chronic schizophrenia is somewhat less than 1% of the population but this is one of the most important psychiatric illness due to its early onset, chronicity and associated disability.

Methods: A prospective and observational study was carried out on 76 patients for 12 months. Patients of either sex, aged between 18 to 50 years who were diagnosed as schizophrenia according to DSM IV-TR were screened and recruited for the study. Prescriptions were analyzed for socio demographic details and psychotropic drugs prescribed.

Results: Out of 76 patients 46 (60.53%) were males, maximum occurred 19 (41.30%) between 18 and 25 years of age. Females were 30 (39.47%), maximum occurred 12 (40%) between 34 - 39 years of age. 52 (68.42%) were from urban area and 24 (31.57%) were from rural area. 26 (34.21%) were illiterate, 24 (31.58%) primary educated, 16 (21.05%) secondary educated and 10 (13.16%) higher secondary and above. 20 (26.32%) were unemployed, students 9 (11.84%), housewives 19 (25%), agricultural workers 10 (13.16%), nonagricultural outdoor workers 4 (5.26%) and nonagricultural indoor workers were 14 (18.42%). Only atypical antipsychotics were prescribed. Olanzapine was prescribed in 30 (39.47%), risperidone 16 (21.05%), amisulpride 13 (17.11%), aripiprazole 11 (14.47%) and quetiapine 06 (7.89%) respectively.

Conclusions: The sociodemographic factors associated with schizophrenia are urban locality, illiteracy, low socioeconomic status and unemployment. The treatment pattern observed correlates with the changing trends in the treatment of schizophrenia worldwide.

Keywords: Atypical antipsychotics, Epidemiology, Olanzapine, Schizophrenia

INTRODUCTION

Schizophrenia is a chronic and debilitating psychiatric illness consisting primarily of symptoms such as hallucinations and delusions, also termed as “positive” symptoms. In addition, individuals may experience “negative” symptoms which include loss of sense of pleasure, social withdrawal, impoverishment of thoughts and speech and flattening of affect. According to WHO estimates, schizophrenia affects approximately 24 million people worldwide. The prevalence of schizophrenia varies across the world, within countries, and at the local and neighborhood level.¹

Prevalence of chronic schizophrenia is somewhat less than 1% of the population but this is one of the most important psychiatric illness due to its early onset, chronicity and associated disability.² The most essential risk factors identified in the latest

NFBC 1966 review were male gender, parental psychosis, unwanted pregnancy, perinatal brain damage, low birth weight, late age at learning to stand and walk, not being potty trained by the age of one, central nervous system infections by the age of 14 years, and not attending normal school grade.³ Evidence from nearly a century of epidemiological research indicates that schizophrenia

occurs in all populations with a prevalence in the range of 1.4 to 4.6 per 1000 and incidence rates in the range of 0.16-0.42 per 1000 population.⁴ Systematic reviews of epidemiological studies have indicated that the rate of schizophrenia and related disorders is affected by some environmental factors and social variables including socioeconomic position and marital status.¹

Psychotropic medications have had a remarkable impact on psychiatric practice. Antipsychotic medications revolutionized the way of treatment of schizophrenia and other type of psychotic illness.⁵

As epidemiological studies on schizophrenia are sparse in southern part of Assam, present study was undertaken to analyze the sociodemographic profile and drug prescribing pattern in patients with schizophrenia in Silchar Medical College and hospital, Silchar. This is the only referral hospital located in southern part of Assam.

METHODS

A prospective and observational study was carried out in psychiatry outpatient department of Silchar Medical College & Hospital. A total of 76 patients of either sex, aged between 18 to 50 years, attending the outpatient department (OPD) of psychiatry, Silchar Medical College and Hospital, Silchar and diagnosed as schizophrenia according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM IV-TR) criteria⁶ were screened and recruited in the study after satisfying the inclusion and exclusion criteria with due written consent from the patients. Utilization pattern of antipsychotic drugs were analyzed on 76 prescriptions. Physicians prescribed the antipsychotic drugs as per the Maudsley prescribing guidelines in psychiatry.⁷ Olanzapine was prescribed from 10mg to 20 mg, risperidone 2-8 mg, amisulpride 100-400 mg, aripiprazole 15-30 mg and quetiapine was prescribed from 400 mg to 600 mg. All the drugs were given orally in tablet dosage form. The study was carried out for a period of 12 months

from July 2017 to July 2018. Subject recruitment was started only after obtaining approval from the Institutional Ethical Committee (IEC) meeting held on 20/02/2017.

Statistical analysis

Data were entered in computer database and statistical analysis was done with the help of Microsoft excel-2007.

RESULTS

Table 1 shows that out of 76 patients males were 46 (60.53%) and females were 30(39.47%). In males, the maximum number of cases 19 (41.30%) occurred between the ages of 18 and 25 years and in females 12 (40%) between the ages of 34 - 39 years. It was seen that, out of 76 patients, 52 (68.42%) were from urban area and 24 (31.57%) were from rural area (Table 2).

Table 1: Distribution of cases according to age.

Age in years	Male	Female	Total no. of patient
18-25	19 (41.30%)	3 (10%)	22 (28.94%)
26-33	12 (26.09%)	7 (23.33%)	19 (25%)
34-39	8 (17.39%)	12 (40%)	20 (26.31%)
41-50	7 (15.22%)	8 (26.67%)	15 (19.73%)
Total	46 (60.53%)	30 (39.47%)	76 (100%)

Table 2: Distribution of cases according to the residence.

Residence	Male	Female	Total
Urban patient	29 (38.15%)	23 (30.26%)	52 (68.42%)
Rural patient	13 (17.10%)	11 (14.47%)	24 (31.57%)
Total no. of schizophrenic patient	42 (55.26%)	34 (44.73%)	76 (100%)

Table 3: Distribution of cases according to educational status.

Sex	Education				Total
	Illiterate	Primary	Secondary	Higher secondary and above	
Male	16 (21.05%)	10 (13.16%)	9 (11.84%)	7 (9.21%)	42 (55.26%)
Female	10 (13.16%)	14 (18.42%)	7 (9.21%)	3 (3.95%)	34 (44.74%)
Total	26 (34.21%)	24 (31.58%)	16 (21.05%)	10 (13.16%)	76 (100%)

Table 4: Distribution of cases according to occupational status.

Occupation	Unemployed	Student	Housewife/ Homemaker	Agricultural worker	Non-agricultural outdoor worker	Non-agricultural indoor worker
Male	10 (13.16%)	3 (3.95%)	0	10 (13.16%)	3 (3.95%)	13 (17.11%)
Female	10 (13.16%)	6 (7.89 %)	19 (25%)	0	1 (1.32 %)	1 (1.32 %)
Total	20 (26.32%)	9(11.84%)	19 (25%)	10 (13.16%)	4 (5.26%)	14(18.42%)

According to educational status, out of 76 patients, 26 (34.21%) were illiterate, 24 (31.58 %) were primary educated, 16 (21.05 %) were secondary educated and 10 (13.16%) were higher secondary and above (Table 3).

Out of 76 patients, 20 (26.32%) were unemployed with equal male and female distribution. Along with that, students were 9 (11.84%), housewives 19 (25%), agricultural workers 10 (13.16%), nonagricultural outdoor workers 4 (5.26%) and nonagricultural indoor workers were 14 (18.42%) (Table 4).

Table 5: Drug usage pattern in schizophrenia.

Name of antipsychotic drug	No. of prescriptions
Olanzapine	30 (39.47%)
Risperidone	16 (21.05%)
Amisulpride	13 (17.11%)
Aripiprazole	11 (14.47%)
Quetiapine	06 (7.89%)
Total	76 (100%)

Total 76 prescriptions were analysed where only atypical antipsychotics were prescribed. Among these drugs, olanzapine was prescribed in 30 (39.47%) number of prescriptions followed by risperidone 16 (21.05%), amisulpride, 13 (17.11%), aripiprazole 11 (14.47%) and quetiapine 06 (7.89%) respectively (Table 5).

Table 6: The WHO prescribing indicators among schizophrenic outpatients.

Indicators	
Total number of prescriptions analyzed	76
Total number of drugs prescribed	168
Average number of drugs per encounter	2.21
Percentage of encounters with an antibiotic prescribed	0
Percentage of encounter with an injection prescribed	0
Percentage of drugs prescribed from NLEM of 2011	30 (17.86%)
Percentage of drugs prescribed by generic name	74 (44.05%)

Out of 76 prescriptions prescribed to schizophrenic patients, drugs prescribed by the generic names were 74 (44.05%), 30 (17.86%) prescribed were from the National List of Essential Medicines of India (NLEM). No injectable or antibiotic were prescribed (Table 6).

DISCUSSION

Present study showed that in males, the maximum number of cases occurred between the ages of 18 and 25 years and in females between the ages of 34-39 years. It was reported by Tandon et al, that schizophrenia appeared earlier in man usually in early twenties than in woman who were affected

in the twenties to early thirties.⁸ Present study also showed similar findings. Most of the patients with Schizophrenia i.e., 80.25% were below 40 years of age whereas only 19.73% of the patients were over 40 years. It has been reported by Ali A et al, that peak age of onset of schizophrenia is 15-30 years.⁹ Gender predisposition found in our study is similar with many other studies. In present study it was found that schizophrenic illness is more common in males 46 (60.53%) compared to females 30 (39.47%). Similar type of studies done by Bhowmik S et al, and Ganesh R et al, showed that male patients were 40 (52%) and 35 (54.7%) and females were 38 (48%) and 27 (45.3%) respectively.^{10,11} These results are quite similar to our study. Epidemiological studies done by McGrath J et al, and Aleman A et al, found that the male : female ratio was 1.4:1.^{12,13} The male-female ratio noted in present study was 1.5:1 which is quite similar. However, a study done in Gujarat by Galani VJ et al, as it shows that females and males affecting schizophrenia were almost equal.¹⁴ Estrogens have cognitive enhancing and neuroprotective effects.¹⁵ It is observed that female patients with psychotic disorder present with more severe mental deterioration in an advanced stage of the illness. This may be due to the lack of awareness by their family members and relatives or it may be due to higher depressive episodes in females due to increase hormonal influences.¹⁶ Although sex difference is not a significant factor in schizophrenia, it has been observed that the clinical remission and recovery is higher in female rather than male.¹⁷

The risk for schizophrenia at the most urban environment was estimated to be 2.37 times higher than in the most rural environment.¹⁸ Present study shows that there is an increase preponderance of schizophrenic illness in urban area. It was about 52 (68.42%) patients coming from distant urban places. A similar type of result was also seen in a study done by Grover S et al, where they have encountered a total of 56.66% of urban patients.¹⁹ Neighborhoods primarily located in densely populated settings with high rates of social fragmentation and deprivation appeared to have the highest rates of psychiatric morbidity.²⁰

This study also shows that the total illiterate patient was 26 (34.21%). A similar study done by Grover S et al, found a total of 7.36% of illiterate patient.¹⁹ Present study shows very large amount of illiterate patient compared to the other. This type of results may be due to inability of the patients to go to schools or to continue their education or work. It also supports the general finding that the schizophrenia is most common in patients, who is homeless, workless as well as from low socioeconomic background.²¹

Present study also evaluates the occupational status of the patients and it shows that unemployed patients were 20 (26.32%) and housewives/home-worker is 19 (25%) which is higher in number compared to the student or agricultural (indoor/outdoor) worker category. Studies have found that people with schizophrenia are more likely to reside in areas

characterized by higher social deprivation and occupy lower socioeconomic positions. This is particularly true for individuals at the bottom of the socioeconomic status hierarchy.²²

In this study atypical antipsychotic were prescribed in 100% of the patients. The results were comparable to the studies done by Chakravarty et al, Dutta et al, and Grover S et al, which has shown that the most commonly prescribed antipsychotic drug in psychiatric outpatient department was olanzapine followed by risperidone.^{19,23,24} Olanzapine prescribed in the above mentioned studies were 48.21% , 44.4%, and 41.23% respectively. In the present study also, olanzapine was seen in 30 prescriptions, which is about 39.47%. Several factors are held responsible for this change, some of which include: a lower reported incidence of extrapyramidal symptoms (EPS) and Tardive Dyskinesia (TD), intensive focus on research and education about atypical antipsychotics, as well as the presence of a strong market force of companies and physicians choosing to try something new in the hopes of maximizing outcomes.²⁵ Average number of drug prescribed per prescription is 2.21 which is comparable with other studies which is in the range from 2 to 3.3 drugs per prescription.²⁶ The number of prescriptions with antipsychotic drugs which were from national list of essential medicines of India (NLEM), 2011 were 30 (17.86%). In 74 (44.05%) prescriptions the drugs were prescribed by the generic names. The primary purpose of NLEM is to promote rational use of medicines considering the three important aspects i.e. cost, safety and efficacy. Furthermore, it promotes prescription by generic names.²⁷

CONCLUSION

Psychiatric pharmacoepidemiological studies in India have made the important contribution to improve the understanding of schizophrenia in different regions in India. This can contribute to the public health efforts for prevention of schizophrenia. The socio-demographic aspects of the present study showed that prevalence of schizophrenia was higher among males and between the ages of 18 and 25 years. The sociodemographic factors associated with schizophrenia are urban locality, illiteracy, low socioeconomic status and unemployment. All the patients were prescribed with atypical antipsychotics. Olanzapine was the commonest atypical antipsychotic drug. There is a changing trends in the treatment of schizophrenia all over the world for better compliance and lesser side effects, which correlates with the treatment pattern observed in our study. Further studies are needed to be carried out on larger scale to get the complete picture of schizophrenia epidemiology and the drug usage pattern from North-Eastern region of India.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Barman S, Roy D, Yashin AN, Ghosh P. Pharmacoepidemiological survey of schizophrenia in a tertiary care teaching hospital. *Int J Basic Clin Pharmacol* 2019;8:881-5.