Research Article

Prescribing Patterns in Schizophrenic Patients Attending a Tertiary Care Hospital, Kerala

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ABSTRACT

Schizophrenia is a mental disorder that affects millions around the world, both males and females. A combination of genetic and environmental factors can play a role in the development of schizophrenia. The treatment of schizophrenia consists of an acute phase, a maintenance phase. The purpose of this study is to retrospectively evaluate the prescribing pattern in schizophrenic patients, to classify the various types of schizophrenia, evaluate the various symptoms associated, and to study the ADRs associated with antipsychotic treatment. A retrospective 8-month study conducted on inpatients diagnosed with schizophrenia at psychiatric department in a tertiary care hospital in Kerala. Patients who satisfied the inclusion criteria were included in the study. Data collection was carried out for a period of 2 years from 2013 January to 2014 December. A total of 156 patients were included in the study for which majority of the patients (28.8%) belong to the age group of 21-30 years. Olanzapine (32.46%) was the most commonly prescribed drug followed by Risperidone (22.07). 98% of patients were prescribed with antipsychotics combination therapy to improve their therapeutic outcomes and to reduce associated side-effects. Lorazepam was the most commonly prescribed drug that accounts for about 35.89% of total prescriptions, followed by clonazepam to produce a calming effect in aggressive patients. Lithium & bupropion (5.12%) was the most commonly prescribed mood stabilizer, followed by sodium valproate (3.84%). A single case of olanzapine induced pancytopenia was observed having a score of 8 (probable) using the Naranjo causality assessment scale. From this study, we observe that atypical drug use has been continuously expanding. The rapidly increasing use of this newer class of antipsychotics needs a better evaluation regarding their safety profile. So, monitoring of adverse drug reactions is necessary for patient safety. This study also plays an important role in planning the budget of a health care system.

Keywords: schizophrenia, prescribing pattern, anti-psychotic treatment ADRs.

INTRODUCTION

Schizophrenia is a severe mental disorder characterized by profound disruptions in thinking, affecting the language and sense of self. It often includes psychotic experiences, such as hearing voices or delusions, abnormal social behaviour and failure to recognize what is real[1]. The cause of schizophrenia is believed to be a combination of genetic and environmental factors. Possible environmental factors include cannabis use, poor nutrition during pregnancy, being raised in a city, parental age, and certain infections. About 0.3–0.7% of people are affected by schizophrenia during their lifetime[2]. The average life expectancy of people with the disorder is ten to twenty five years less than the average. This is the result of increased physical health problems and a higher suicide rate (about 5%). In 2013 an estimated 16,000 people died from behaviour related-to or caused by schizophrenia[3].

Symptoms: Positive and Negative

Positive symptoms are those that most individuals do not normally experience but are present in people with schizophrenia include delusions, disordered thoughts, speech, auditory, visual, olfactory and gustatory hallucinations. These are typically regarded as manifestations of psychosis[4]. Hallucinations are also typically related to the content of the delusional theme Positive symptoms generally respond well to medication[4]. Negative symptoms are deficits of normal emotional responses or of other thought processes, and are less responsive to medication. They commonly include flat expressions or little emotion, poverty of speech, inability to experience pleasure, lack of desire to form relationships, and lack of motivation[5].

Onset

Late adolescence and early adulthood are peak periods for the onset of schizophrenia in a young adult's social and vocational development[6]. In 40% of men and 23% of women diagnosed with schizophrenia, the condition manifested itself before the age of 19. To minimize the developmental disruption associated with schizophrenia, much work has recently been done to identify and treat the prodromal (pre-onset) phase of the illness, which has been detected up to 30 months before the onset of symptoms[7].

Causes

A combination of genetic and environmental factors can play a role in the development of schizophrenia. People with a family history of schizophrenia who have a transient psychosis have a 20–40% chance of being

diagnosed one year later. Genetic heritability vary because of the difficulty in separating the effects of genetics and the environment; averages of 0.80 have been claimed[8].

The ICD-10 criterion has put more emphasis on Schneiderian first-rank symptoms. If signs of disturbance are present for more than a month but less than six months, the diagnosis of schizophrenia disorder is applied. Psychotic symptoms lasting less than a month may be diagnosed as brief psychotic disorder, and various conditions may be classed as psychotic disorder not otherwise specified, while schizoaffective disorder is diagnosed if symptoms of mood disorder are substantially present alongside psychotic symptoms.

Subtypes[9]

1. Paranoid type: Delusions or auditory hallucinations are present, but thought disorder, disorganized behaviour, or affective flattening are absent. Delusions are persecutory and/or grandiose, but in addition to these, other themes such as jealousy, religiosity, or somatisation may also be present. (DSM code 295.3/ICD code F20.0)
2. Disorganized type: Named hebephrenic schizophrenia in the ICD, it is thought the disorder and flat affect are present together. (DSM code 295.1/ICD code F20.1)
3. Catatonic type: The subject may be almost immobile or exhibit agitated purposeless movement. Symptoms can include catatonic stupor and waxy flexibility. (DSM code 295.2/ICD code F20.2)
4. Undifferentiated type: Psychotic symptoms are present but the criteria for paranoid, disorganized, or catatonic types have not been met. (DSM code 295.9/ICD code F20.3)
5. Residual type: Where positive symptoms are present at a low intensity only. (DSM code 295.6/ICD code F20.5)
6. Organic delusional
7. Drug induced dystonia
8. Schizotypal & Schizoid personality

Treatment

In schizophrenia, antipsychotic medications are proven effective in treating acute psychosis and reducing the risk of future psychotic episodes[10]. The treatment of schizophrenia thus has two main phases: an acute phase, when higher doses might be necessary in order to treat psychotic symptoms, followed by a maintenance phase, which is usually life-long. During the maintenance phase, dosage is often gradually reduced to the minimum required to prevent further episodes and control inter-episode symptoms[11]. Even with continued treatment, some patients experience relapses. The most common cause of a relapse is discontinuing medications[12].

The purpose of this study is to retrospectively evaluate the prescribing pattern in schizophrenic patients by classifying the types of diagnosed schizophrenia, evaluating the various symptoms associated and to study the ADRs associated with antipsychotic treatment.

MATERIALS AND METHODS

A retrospective 8-month study conducted from July 2015 to February 2016. The study was done in the department of psychiatry in a tertiary care hospital in Kochi Kerala. The study was carried out on inpatients with diagnosed schizophrenia. A standardized data collection form was prepared and necessary data were collected by the hospital database system and review of patients' medical records. The data collection form provided demographic details of the patients which included age, sex, family history, symptoms, types &prescribing patterns were also noted. ADR's obtained will be assessed by Naranjo causality assessment scale. The study was approved by institutions' ethical committee. Patients visiting the inpatient department of psychiatry and who satisfied the inclusion criteria were included in the study.

Patients who were included in the study were those diagnosed with schizophrenia by a physician and that they attended the inpatient clinic. Those patients who were visiting the outpatient department of psychiatry were excluded from the study. Data was collected using the hospital's information database; examination of medical records in which all data was recorded in a pre-designed data collection form and the Naranjo causality assessment scale. Data collection was carried out for a period of 2 years from 2013 January to 2014 December.

RESULTS AND DISCUSSION

A total of 156 patients were included in the study for which majority of the patients (28.8%) belong to the age group of 21-30 years, followed by the age group of 31-40 years (26.2%). Only 3.2% of the patients were in the age group above 71 years. The youngest patient was 16 years old & the oldest 81 years. In this study, there were 82 males and 74 females; it is evident that male patients are more compared to females. Men are more susceptible because of various genetical, social and economic factors. Females usually have a late onset of schizophrenia largely due to increased estrogen secretions up to their mid-30s. A study conducted by Judy M. Versola, clearly shows gender based details and this is in accordance with the current study[13].

Padmini Devi D et al[14] conducted a retrospective study on 1159 case records the age of onset and the mean age was 33.67(SD=10.8) years with a male to female ratio 1.5 was calculated.

Only 34.6% of the patients in our study had positive family history of schizophrenia and in majority of the patients there was no history of schizophrenia in the family. Reiji yoshemura et al[15]. conducted a study in which most of the subjects presented with long duration

of illness ≥ 10 yrs. This suggested the importance to take proper medical histories of suspected patients to identify the etiology of the mental disorder.

Positive symptoms were the most frequent symptom, reported by 73.7% of patients & which include hallucinations, delusions, thought disorder, and false believes and disorganized speech. Negative symptoms were reported by 23% of patients (table 1). A study by Jakoben KD, Frederickson JN, Hansen T, et al showed that nearly 80.1% patients were presented with positive symptoms and this is mainly due to over secretion of serotonin[16].

Table 1: Positive symptoms associated with schizophrenia (n=156)

Positive Symptoms	Percentage of Patients
Hallucinations	29.48
Delusions	15.38
Stress	17.3
Insomnia	30.76
Anger Outburst	16.02

It observed that during psychotic episodes' patients experienced insomnia (30.76%), followed by hallucinations (29.48%). Abnormalities in frontal and temporal lobe and its over activity is associated with auditory hallucination. This is in accordance with the study conducted by Renaud Jadri[17].

Negative symptoms were mainly observed to be muttering to self (17.3%) is largely seen in schizophrenics, followed by reduced social interactions (table 2). These negative symptoms are mainly precipitated due to increased glutamate synthesis by brain. This is in accordance with the study conducted by Sax KW et al[18].

Table 2: Negative symptoms associated with schizophrenia (n=156)

Negative Symptoms	Percentage of Patients
Lack of motivation	6.41
Reduced self-care	9.63
Muttering to self	17.3
Reduced social interactions	11.53

The paranoid schizophrenia was the most frequent type of schizophrenia (60.9% of patients), followed by undifferentiated schizophrenia (12.8% of patients). 12.2% of patients have acute polymorphic disorder with symptoms of schizophrenia. 4.5% of patients had schizo affective & schizotypal.1.9% of patients had residual schizophrenia. Only 0.64% of patients have organic delusional, schizoid personality, drug induced dystonia, hebephrenic & simple schizophrenia (table 3).

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Olanzapine (32.46%) was the most commonly prescribed drug followed by Risperidone (22.07). 98%of patients were prescribed with antipsychotics combination therapy to improve their therapeutic outcomes and to reduce associated side-effects (Figure 1). A prospective study made by Sushma HK et al on antipsychotic drug prescribing pattern in which 78% received antipsychotic combination therapy which matches with the analysis made in present study.19 Hamman J et al 20 found patients diagnosed with schizophrenia were prescribed the following drugs olanzapine (n=3222), clozapine (n=236), Risperidone (n=1117), & quetiapine (n=189). They found that patients prescribed with olanzapine had greater odds on remaining with initial therapy compared to other treatment groups & they concluded that most common reason for modifying treatment was lack of effectiveness & also due to intolerability. Dr. Sarang anantrao deshmukh et al[21] found that the most common drug group prescribed was antidepressant (60.4%) and Olanzapine use was highest (26.6).

Lorazepam was the most commonly prescribed drug that accounts for about 35.89% of total prescriptions, followed by clonazepam it helps in producing a calming effect in aggressive patients (Figure 2). A study conducted by David j muzina showed the same analysis that we made in our present study[22].

Lithium & bupropion (5.12%) were the most commonly prescribed mood stabiliser from this analysis, which is followed by sodium valproate (3.84%) (Table 5). A study by Susanne et al. Drug Prescription Patterns in Schizophrenia is accordance with our present study.23

Pranab Kumar Paul et al[24] observed that out of 459 drugs that were prescribed in their study; the number of antipsychotics 228(49.67%), central cholinergics 97 (21.67%), sedatives & hypnotics 56 (12-02%), antidepressants 10 (2.17%) were prescribed. It was remarkably noted that first and second generation antipsychotics were equally efficacious. Olanzapine was the most common medication used followed by risperidone orally. This was a study which was carried out to view the efficacy, adverse reactions and usage of various other psychotropic medicines.

During our study period an olanzapine induced pancytopenia was observed. Using the Naranjo causality assessment scale the suspected drug reaction was calculated to have a scare of 8 thus indicating that it was a probable drug induced adverse reaction. Kaustav chakraborty et al[25] conducted a study on pattern of psychotropic prescription in a tertiary care center. A total of 411 patients were included in the study which was

done in accordance with ICD10 classification. Antidepressants (35.73%) were most commonly prescribed as monotherapy. Anti-cholinergic (100%) were commonly used in combinatory with other psychotropic & they found out three most reasons that were common for prescribing polypharmacy were augmentation (43.8%) of 1o drugs, to prevent ADR of 10 drugs (39.6%) & also to treat comorbidity (34.9%).

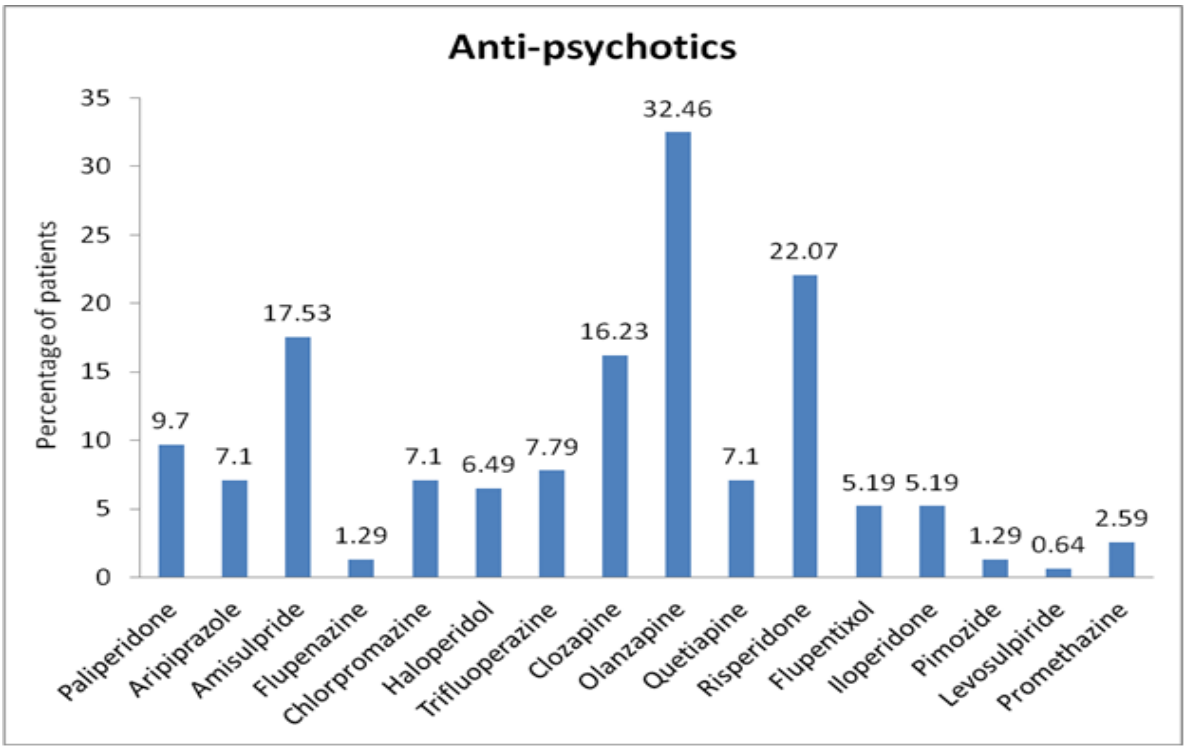

Figure 1: Antipsychotic drugs prescribed for treatment of schizophrenia in sample population (n=156).

Table 3: Types of schizophrenia seen in the sample population (n=156)

Types	Number of Patients	Percentage of Patients
Paranoid schizophrenia	95	60.9
Undifferentiated schizophrenia	20	12.8
Acute polymorphic disorder with symptoms of schizophrenia	19	12.2
Schizoaffective	7	4.5
Schizotypal	7	4.5
Residual schizophrenia	3	1.9
Organic delusional	1	0.64
Schizoid personality	1	0.64
Drug induced dystonia	1	0.64
Herbephrentic schizophrenia	1	0.64
Simple Schizophrenia	1	0.64
Total	156	100

Table 4: Drug categories prescribed for treatment of schizophrenia in sample population (n=156)

Drug Category	Percentage of Patients
Antipsychotic drugs	98.71
Anxiolytic & Sedative drugs	56.41
Antidepressant and mood stabilizing drugs	16.66

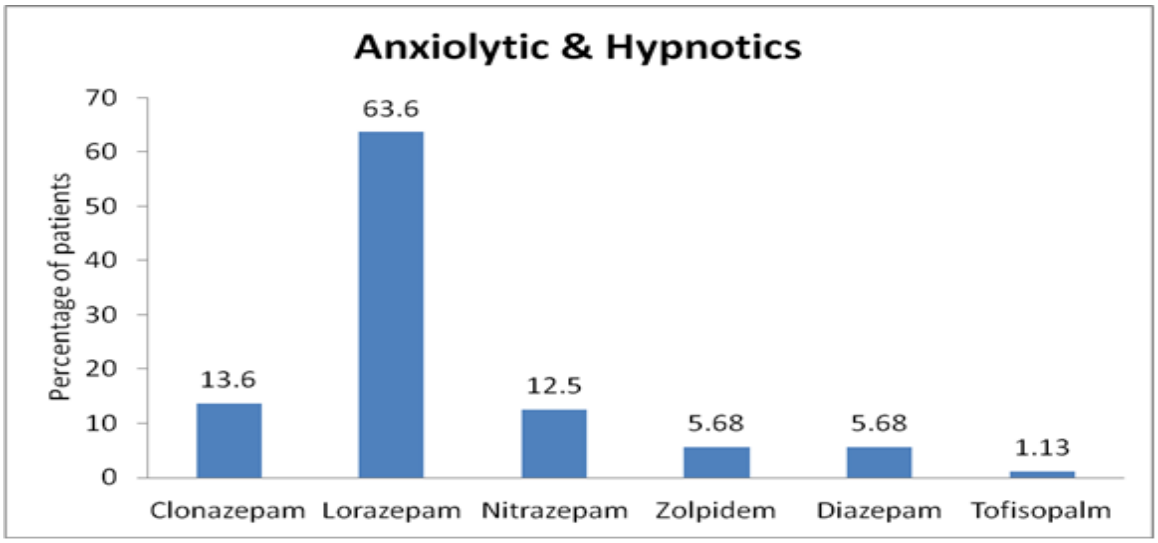

Figure 2: Anxiolytic and hypnotic drugs prescribed for treatment of schizophrenia in sample population (n=156)

Table 5: Anti-depressant and mod stabilizing drugs prescribed for treatment of schizophrenia in sample population (n=156)

Anti-Depressant & Mood Stabilizing Drugs	Percentage of Patients
Escitalopram	7.69
Lithium	30.7
Fluoxetine	7.69
Buproprion	30.7
Sodium valproate	23.07
Dosulepin	3.84

CONCLUSION

Schizophrenia is a severe neuro-psychiatric illness that affects approximately 1% of the world's population which is characterized by positive and negative symptoms. While many factors have been associated with developing schizophrenia including genetics, early environment, neurobiology, psychological and social processes. From this study, we analyzed various types of prescribing pattern in schizophrenic patients and we can see that atypical drug use has been continuously expanding. This helps to identify better treatment options and to examine the most commonly prescribed drug. The rapidly increasing use of this newer class of antipsychotics needs a better evaluation regarding their safety profile. So, monitoring of adverse drug reactions is necessary and this monitoring can provide alert to the clinicians to prescribe drugs with good margin of safety and thereby increasing better therapeutic outcomes.

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