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Original Article

Prescription Patterns in Anti-Psychotic Medication and Drug Related Problems in Schizophrenia Patients

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ABSTRACT

***O**bjectives: The main objective of the study was prescription patterns of antipsychotics and drug related problems in schizophrenia patients. Methodology: A prospective observational study was conducted in psychiatry (OPD) of tertiary care hospital. The data was collected from OPD for a period of 6 months in 100 cases by using data collection forms Socio-demographic's, Positive and Negative symptom assessment scale and Glasgow antipsychotic side effect scale used for detection of drug related problems. Statistics was done to the data by using SPSS software. Result: A total of 100 psychiatric patients, female (58%) patients predominated over males patients (42%). Majority of the schizophrenic patients were under age group of 30-40years (43%), positive symptoms (86%) and Paranoid type (75%). Higher number of patients was treated with combination therapy than mono therapy. Among Atypical antipsychotics Risperidone (34%) and Olanzapine (30%) and Typical-antipsychotics Haloperidol (14%) was the most used for patients. The use of Anticholinergic drug like Trihexphenidyl accounts to most of the prescriptions. Mild side effects (81%) were observed like are weight gain, sedation, restlessness, muscle jerky, slower body movements. Some moderate interactions with combination of Olanzapine+Risperidone (increased sedation), Risperidone+Haloperidol (increased QTc interval), and Olanzapine-Quetipine (increases anti dopamergic effects). Conclusion: Our study demonstrates schizophrenia is mostly seen in middle age females. Combination therapy was preferred and Atypical anti-psychotics are used relatively more than Typical's.*

Keywords: Schizophrenia, Prescription patterns, Antipsychotics, Drug related problems, Positive and Negative Syndrome Scale (PANSS), Glasgow Antipsychotic Side-effect Scale (GASS).

INTRODUCTION:

Schizophrenia is a psychological disorder which is characterized by disruption in thinking, language, and sense of self. It often includes symptoms of psychosis such as delusions, hallucinations and disorganized behavior [1].

Approximately, it affects about 1% of World's population [2] about 21 million people worldwide. It is most common among males (12millions), than females (9millions) [3]. The life expectancy of people with this disorder is ten to twenty five years less than average. Increased health problems and higher suicidal rate was (5%). In 2013 an estimated 16,000 people died from behavior–related cause by schizophrenia [4].

The symptoms of schizophrenia fall into three categories positive, negative, cognitive. Positive symptoms such as hallucinations, delusions, cognitive impairment, disorganized thoughts. Negative symptoms such as social withdrawal, loss of interest, alogia, a motivation and poverty of speech and Cognitive symptoms are lack of judgment & insight, poor attention and uncooperativeness [5-7]. There are five sub types of schizophrenia depending on symptoms observed Paranoid, Residual, Catatonic, Disorganized, and Undifferentiated [6].

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Biochemical, Neurostructural, Genetic, Environmental and perinatal risk are the factors which can cause schizophrenia. Biochemical process constitutes alteration in level of glutamate, glycine, and serotonin [7]. Neurostructural changes like cerebral vascular enlargement, ventricular brain ratio, and cerebral blood flow [8]. Gentical risk of schizophrenia is observe more in identical twins (50%), if both parents are affected (35%), brother or sister effected (10%) [9]. Environmental factors involve exposure to viruses, malnutrition before birth and psychosocial factors. Diagnosis of schizophrenia may include Physical examination, Tests and Screening, Psychiatric evaluation and Diagnostic Criteria for Schizophrenia [10].

As schizophrenia is a chronic & major psychiatric disorder which may require lifelong treatment, thus treatment in early stages controls morbidity and mortality. Antipsychotics are the primary pharmacotherapeutic agents considered effective in the treatment of symptoms and behavior associated with disorder [11]. These are divided into Typical Antipsychotics (Chlorpromazine, Haloperidol, Thiothixene, etc) and Atypical Antipsychotics (Olanzapine, Risperidone, Aripriprazole, Amisulpride, etc). Atypical Antipsychotics are generally considered as first line drugs for therapy of schizophrenia [12]. Non pharmacological treatment consists of Milieu Management, Rehabilitation, Individual Supportive Therapy and Electro Convulsive Theory [13]. Drug related problems are often observed with Antipsychotics. Atypical Antipsychotics produce major side effects like Hyperglycemia, Hyperlipidemia and weight gain were Typical Antipsychotics produce extra pyramidal effects, sedation, Postural Hypertension, Sexual dysfunction [14,15,16].

Materials and methods

A prospective observational study was conducted at psychiatry outpatient department (OPD) in a tertiary care hospital for a period of 6 months (August 2018 to January 2019). The data was collected from OPD by interviewing the patients or care providers. The data collection format was verified and authenticated by the hospital preceptors for the study. Study involved 100 subjects who were diagnosed with schizophrenia according to DSM-5 criteria. In-patients, patients below 18yrs, pregnancy cases, mental retardants, Drug dependence and substance abuse cases were exclude from study.

Written informed consent was taken from patient or care provider to collect data. The data form includes Socio-demographic information like age, gender, weight, marital status, educational status, Past Medical History, social history, family history, history of schizophrenia, types of schizophrenia and also PANSS ,Glasgow scale (GASS) attached to it.

Statistical Analysis: Descriptive statistics was done by using SPSS software to determine mean and standard deviation of collected data. The statistical tool Chi square test was performed to determine P-value between the different variable with data collected (Side effect vs Drugs, types of schizophrenia vs Drugs). The P-value is used in determining the statistical significance within statistical hypothesis for drug related problem in schizophrenia patients to baseline visit. The P-value was set at <0.05 and confidence interval was 95%.

Results

In present study around 100 cases were include as per our criteria. Table-1 indicates socio demographic background of schizophrenic patients. There were female patients (58%) predominant over male's (42%). 30-40 yrs (43%) patient are the most effected than the other age groups, literates (69%), married (71%), patients without family history of schizophrenia (62%), history of schizophrenia 0-5yrs (94%), number of patients with past medical history (32%), positive symptoms (86%)were observed more among the patients than negative symptoms (14%)which can be known through Graph-1 the composite scale graph indicates accurate measure for positive to negative symptoms. In case of types of schizophrenia paranoid (75%), residual (8%), disorganized (7%) and undifferentiated (10%) as mentioned in Figure-1. The p value was found to be clinically significant (P-value < 0.05) for the entire variables at confidence interval 95%.

As per prescription pattern monotherapy (14%) was less preferred than combination therapy (86%). In case of monotherapy Atypical were only given, but for combination therapy number of patients receiving Typical-Atypical (42) and Atypical-Atypical (44) as mentioned in Table-2. Atypical antipsychotics are the most prescribed drugs. When it comes percentage of drug used risperidone (34%) is most prescribed and clozapine (0.6%) is the least as seen in Figure-2.1 and Figure-2.2. Drug related problems with anti psychotics observed are mild (81%), moderate (16%), severe (3%). Most common side effects

observed were sedation, zombie or drugged, weight gain etc indicated in Table-3 and Figure-3. Trihexyphendyl an anti cholinergic was used to prevent extra pyramidal side effects. Some drug interactions are seen between olanzapine-risperidone (both increase sedation), olanzapine-quitepine (increase dopamergic activity), risperidone-haloperidol (increase QTc interval) and can be altered by dose adjustment. Chi square test was performed between variables like Side effects vs Therapy(0.06), Types vs Therapy(0.03), Composite scale vs Therapy(0.01), Positive symptoms vs types (0.01) and P-value was clinically significant(<0.05).

Discussion

A prospective observational study, "prescription patterns of antipsychotics medications and drug related problems in schizophrenia patients." was conducted in tertiary care hospital in outpatient department. As per our study among100 patients, 58% of cases were females and 42% were males. This data resembled to research reported by Christopher Izenhinosen okpataku [17]. But contrast to this study done by Sridhar, Krishna Ravi et al [18]. IN our study most of the schizophrenic patients are below age of 40yrs (67%) similar nature of findings was reported by Indrajeet Benerjee [19], Meenu Vijayan [6] and Stip E [20].

In the present study, 71% patients were married which is similar to H.K Sushma, C.H. Jyothi [21].Patients without family histories are more 62%. Positive symptoms (86%) were seen more in our study than Negative symptoms (14%). A study by Jakoben KD [22] showed nearly 80.1% positive symptoms. Reji Yoshmura et al [23] conducted a study in which most of the patients with of long duration of illness (>10yrs) and suggest the importance to take proper medical history of suspected patients to identify the etiology of mental disorder.

Paranoid schizophrenia in most frequent type of schizophrenia (75%), followed by undifferentiated (10%), which is similar to that of Hee-Yun Kim et al [24]. Risperidone (34%) is the common drug prescribed followed by olanzapine (30%) which is also seen in study of Padmini Devi D et al [25] combination therapy (86%) is most commonly used than that of mono therapy (14%). The combination therapy of atypical drugs was rational. Chi square test was performed showing that p-value was clinically significant, for all socio-demographics, symptoms and therapy.

It was observed from our study that, Antipsychotics produce some of the side effects like weight gain, sedation, drugged, muscle jerky, arms shaky, restlessness, slower movements, sexual problems, erection problems in males. Some moderate drug interactions also observed which can be altered by adjusting the dose.

Conclusion

According to our study the prevalence of schizophrenia was higher in middle age group, females, and literates preference of combination therapy over monotherapy for treatment of schizophrenic patients

Among antipsychotics, atypical like risperidone and olanzapine play vital role in clinical management in decreasing the symptoms of both positive and negative but it is accompanied by some of side effects which can be avoided by dose adjustment. In case of Typical anti Psychotics Haloperidol is widely used to overcome the general psychological symptoms.

The study recommends that proper involvement of clinical pharmacist services is to identify and avoid drug related problems as implicated .by doing so to control mortality and morbidity and prevent further complications. We observed that minimal side effects were managed with Anticholinergic drugs like Trihexyphedyl and by appropriate dosing. Drug interactions were moderate and can overcome through alteration in frequencies.

In the present study the prescription of Antipsychotics was found to be rational. A detailed explanation about the nature of the disease and the drugs prescribed would increase the participation of patients in treatment. So the awareness on health care providers, prescribers and pharmacists will be valuable.

Schizophrenia is a chronic debilitating major psychological disorder which requires long term therapy to get desired outcomes. In early stages treatment provided controls morbidity and mortality rate. Available treatment options for schizophrenia is good and the outlook for disorder continues to improve with antipsychotic medications and non pharmacological therapies, but there is requirement of strong support from patient's health care providers in order to control their symptoms, gain greater independence and lead fulfilling lives. If you think that someone close to you has schizophrenia, than you can make the difference by showing your love, giving support and helping that person get properly evaluated and treated.

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Conflict of Interest: None

Figures:

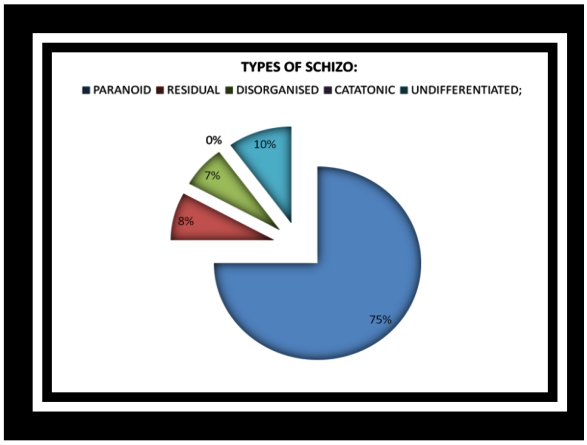


Fig-1: Types of Schizophrenia

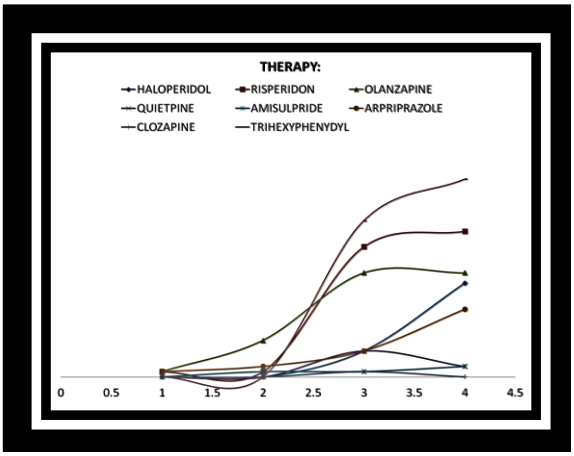


Fig-2.1: Prescription pattern of drugs

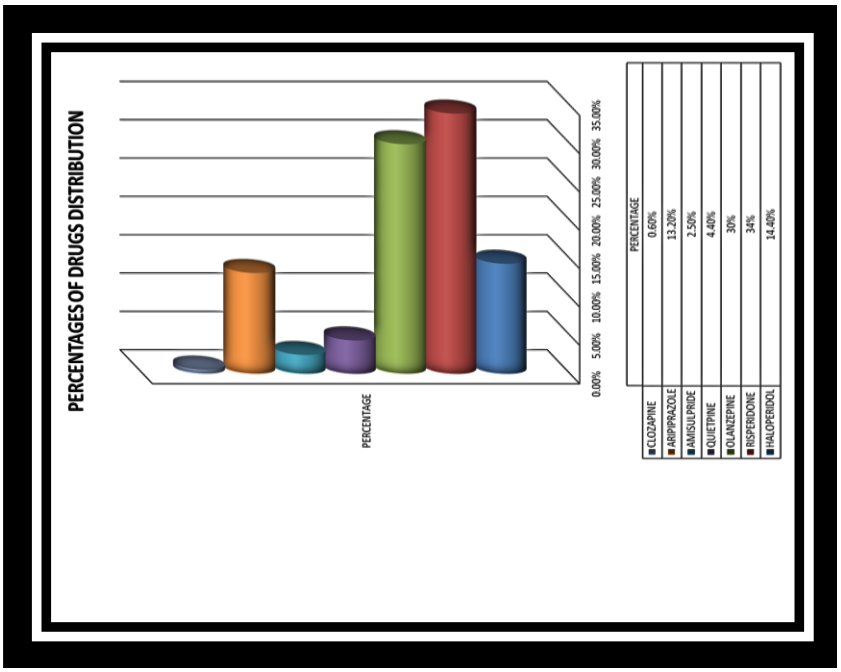
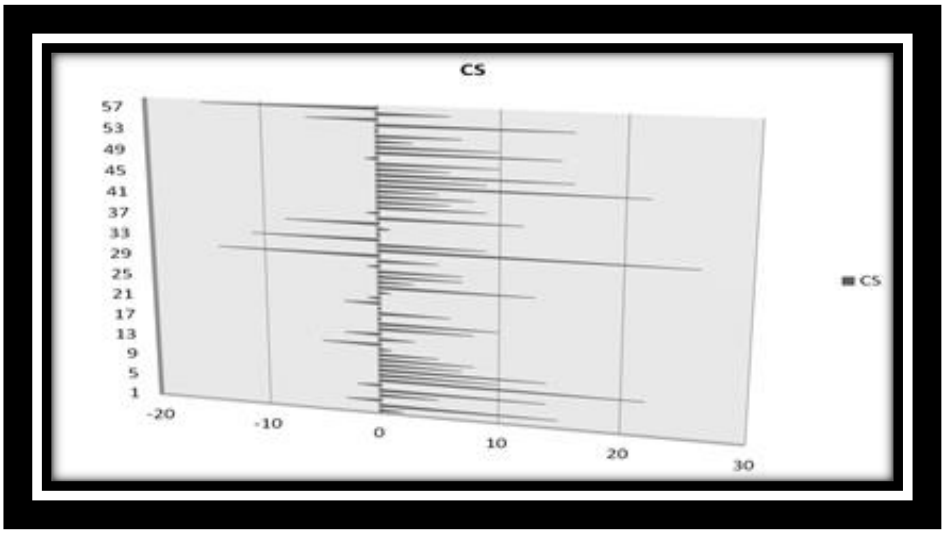


Fig-2.2: Percentage distribution of prescribed drugs



Graph-1: The composite scale (CS) graph of Schizophrenia patients

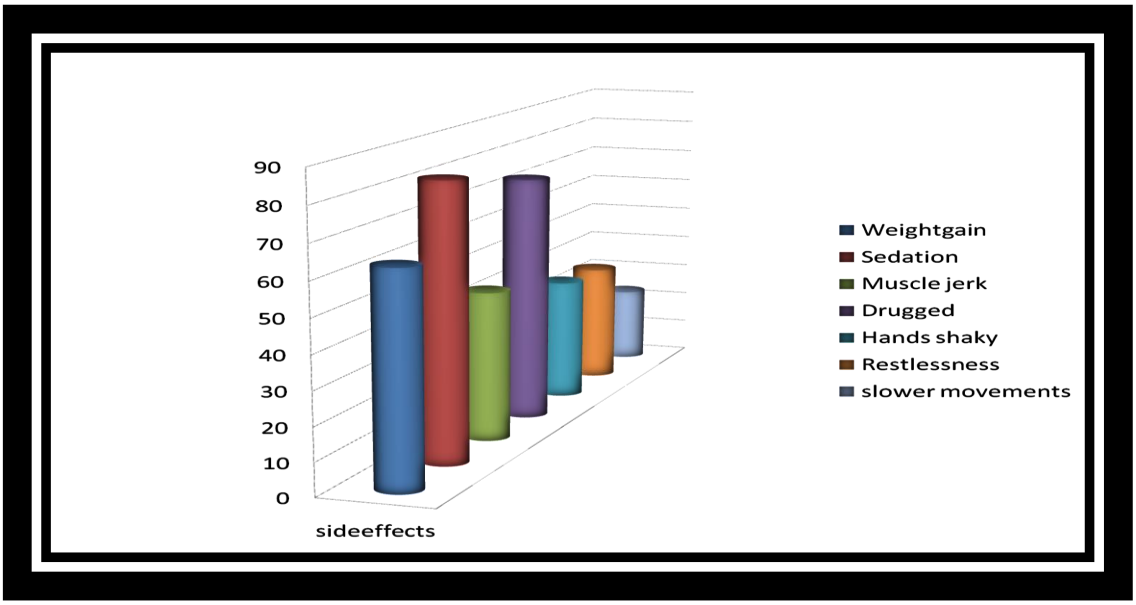


Fig-3: Most common side effects of Anti-psychotic drugs.

Table-2: Prescription patterns of Antipsychotics

Category:	Sub category	Number of Patients	Standard Deviation	P-value
Age	20-30yrs	24	1.179	0.0056
	30-40yrs	43		
	40-50yrs	40		
	>50yrs	13		
Gender	Males	42	0.496	0.0078
	Females	58		
Educational status	Literates	31	0.472	0.0049
	Illiterates	69		
History of Schizophrenia	0-5yrs	94	0.378	0.0065
	5-10yrs	3		
	>10yrs	3		
Marital status	Married	71	0.738	0.0010
	Unmarried	22		
	Divorced	3		
	Widow	4		
Family History	With FH	38	0.352	0.0052
	Without FH	62		
Symptoms	Positive	86	5.514	0.0075
	Negative	14	8.278	0.0051
Past Medical History	HTN	11	-	-
	DM-2	7		
	Hypothyroidism	14		
Types of Schizophrenia	Paranoid	75	1.261	0.0084
	Residual	8		
	Disorganized	7		
	Catatonic	-		
	Undifferentiated	10		

Tables:

Type of Therapy	Sub category	No of patients
Monotherapy	Typical	-
	Atypical	14
Combination therapy	Typical + Atypical	42
	Atypical + Atypical	44

Side effects:	No of patients observed
Weight Gain	63
Sedation	82
Drugged	74
Muscle jerky	45
Restlessness	36
Walking slower	23
Arms shaky	37

Table-3: Drug related problems with Antipsychotic :

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