

Drugs Administration of First Generation Antipsychotic Inpatient Schizophrenic in Hospitals

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ABSTRACT: Schizophrenia is a type of mental disorder that is experienced by many people. This mental health disorder requires treatment and medication so that patients can live their lives well. The main medication given to the patient is an antipsychotic. Until now there are still many who use the first generation of drugs, although this group of drugs causes more side effects than second-generation antipsychotics. This study was conducted to identify the use of antipsychotic drugs in schizophrenic patients hospitalized in a mental hospital in Palembang. This research is non-experimental with a descriptive design. It was conducted in March – June 2022 by recording information from the medical records of schizophrenic patients undergoing hospitalization throughout 2021. The sample was 251 patients, determined by simple random sampling from 900 special medical records for schizophrenia. The Pharmacotherapy Handbook Ninth Edition Algorithms is used as the standard for the use of the drug. The result is that most use of antipsychotics in schizophrenic patients received combination drugs between typical and atypical drugs, amounting to 70 patients (27.89%). In addition, the drug trihexyphenidyl is an additional drug that is most widely used. In the use of typical antipsychotics, there were 18 patients (2.87%) who received the wrong dose of medication and in the use of atypical antipsychotics, there were 13 patients (2.07%) who received the inappropriate drug. This dose discrepancy varies, some exceed the standard book guidelines and some are less than the guidelines in the standard book. The category of schizophrenia hospitalized throughout 2021 is paranoid schizophrenia. The conclusion is that the use of typical drugs (first generation) has not been abandoned even though it causes many side effects, even in the use of these drugs there are still administrations that are not by the guidelines.

KEYWORDS: antipsychotic drugs, hospital, inappropriate, Schizophrenia

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I. INTRODUCTION

Psychosis is a variety of mental disorders characterized by the presence of delusions (beliefs false), various types of hallucinations (wrong hearing, vision and smell), and very disorganized thinking in a clear sensorium. Their mental disorders are many types, one of which is called schizophrenia (Katzung et al., 2012). Schizophrenia is a symptom chronically heterogeneous and is characterized by irregular mindsets, delusions, hallucinations, changes in behaviour, and impaired psychosocial functioning (Dipiro J et al., 2015). Schizophrenia may occur in late adolescence and early adulthood, but it is rare in children. Usually at the age of 15 - 25 years for men and 25 - 35 years for women (Maslim, 2013). The drug used as the main therapy for schizophrenia is antipsychotics.

Antipsychotic administration is performed on almost all acute psychotic episodes (Lally and MacCabe, 2015). There are two types of antipsychotics, namely typical (first generation) and atypical (second generation) (Lehman et al., 2010). Of the many therapies given to schizophrenic patients, most of it is still use first-generation drugs, although these drugs cause more side effects than second-generation drugs, which have a lower risk of side effects, for example in extrapyramidal symptoms, such as acute dystonia, ataxia, dyskinesia and Parkinson's symptoms (Lally and MacCabe, 2015). A study shows that the use of this antipsychotic drug is still inappropriate. There were 22.4% improper medications, 3.4% improper patients, improper doses 25.9%, and improper frequency 31.0%.

In this study, there were therapeutic problems in Schizophrenic patients, namely the use of fluphenazine and haloperidol which had potential interactions that could cause an increase in the QT interval. Another problem is that there are contraindications found between the drugs trihexyphenidyl and diazepam in patients with diabetes mellitus concomitant disease (Fadilla and Puspitasari, 2016). Other studies on the evaluation of antipsychotic treatment in Schizophrenic Patients at Sambang Lihum Mental Hospital showed that the drug was not appropriate at 3.3%, the right dose was 2.5%, and the frequency was not exactly 38.8%. In the study, there was a therapeutic problem in Schizophrenic patients, namely, it was said that the dose of 2 patients

was incorrect because the clozapine dose was insufficient, namely 12.5 mg/day, whose dosage range was 25-50 mg/day and the target dose range was 100-800 mg/day (Faqih et al., 2021). In the study of Faqih et al., there were still incidents of irrationality in the use of drugs and therefore it was necessary to conduct research in other health agencies, to ensure the conformity of treatment with the existing standard books.

II. MATERIALS AND METHOD

This study is an observational study with a descriptive design. The study was conducted at a psychiatric hospital from March to April 2022 by tracing medical record data of inpatient schizophrenic patients throughout 2021. Since the 900 hospitalized schizophrenic patients, a simple random sampling was performed, and 251 patients who met the inclusion criteria were obtained. The data were analyzed descriptively using the Pharmacotherapy Handbook, ninth edition algorithms literature as a guideline, especially against the variable types of antipsychotics and their dosage.

1. Characteristics of Patient

Table 1. Characteristics of Patient

Categories	Number of Patient	Percentage (%)
<u>Sex</u>		
Male	208	82.87
Female	43	17.13
<u>Age (Year)</u>		
< 25	47	18.72
25 – 50	184	73.31
> 50	20	7.97
<u>Academic background</u>		
Farm Worker/Labour	46	18.33
Private	18	7.17
Civil servant	7	2.79
Police/Military	4	1.59
Unemployment	176	70.12

Of the 251 medical records examined, there were 208 male patients. The difference is very large compared to the number of female patients. Research in one of the Mental Hospitals in the South Jakarta area in 2016 the number was almost balanced by men and women, men totaling 32 patients (55.2%) (Fadilla and Puspitasari, 2016). Emotionally, women harbour more of their feelings, so with the encouragement of several other factors, this can cause mental disorders, as a result of which many women suffer from mental disorders. But during the time of pandemic Covid-19, male patients are becoming more numerous than woman. This may be because socially men are the main support of the family economy, so this difficult condition causes greater life pressures on men than women it can trigger mental disorders (Hariyani et al., 2016).

The age of schizophrenic patients is the most in the range of 25–50 years, namely 184 patients (73.31%). This includes the productive age, however, schizophrenic inpatients were also found at the lowest age of 14 years and the highest age of 78 years. The results of research at the Mental Inpatient Installation of Madani Hospital, Central Sulawesi Province in 2014 also found more or less the same situation, namely, aged 26-45 years totaling 39 patients (66.1%) (Fahrul et al., 2014). Up to seventy percent of patients come from the group of people who are not working (176 out of 251 people). The absence of work is one of the risk factors for schizophrenia, because it causes people to experience more stress. The risk factor is 1.1 times greater than that of working people (Sudarmono et al., 2018). Research conducted at the Sambang Lihum Mental Hospital in 2020 also showed that the schizophrenic patients treated were mostly not working, namely 78.5% (Faqih et al., 2021). Unfortunately no data were found on how long the patient did not work before experiencing schizophrenia.

2. Tipe of Schizophrenia

Table 2. Frequency Distribution by Type of Schizophrenia

Type of Scyzofrenia	Number of Patients	Percentages (%)
Hebefrenic	5	1.99
Non specific	47	18.73
Paranoid	199	79.28
Sumary	251	100

The most common type of schizophrenia is the paranoid type with the main symptoms of hallucinations and delusions such as the presence of olfactory and tasteful hallucinations of a sexual nature, hallucinatory voices that threaten the patient or command the patient, and emotional disturbances (APA, 2013). As in several

previous studies, paranoid schizophrenia is the most common type because this type is very common. In a mental hospital in South Jakarta, there were 43 patients (74.1%) who experienced the paranoid type (Fadilla and Puspitasari, 2016).

3. Length of Treatment

Table 3. Frequency Distribution by Length of Treatment

Length of Treatment (day)	Number of Participant	Percentages (%)
0 – 10	30	11.95
11 – 20	144	57.37
21 – 30	70	27.89
31 – 40	6	2.39
> 40	1	0.40
Total	251	100

The length of time a patient undergoes a hospitalization day is determined by the severity of the patient (Padmasari and Sugiyono, 2019). In this study, the shortest length of treatment was 10 days and the longest was more than 40 days. In general, patients have treatment days between 11 and 30 days. The patient went home because his condition was already possible to be treated at home and periodically re-controlled to the hospital through an outpatient polyclinic. This can be seen in his medical records, where most of the patients went home improved. (Table 4).

The length of the treatment day is also most likely due to the leadership's policy related to financing for patients participating in JKN / BPJS Kesehatan. In other studies, patients were generally treated for less than 21 days, which was around 67.8% (Faqih et al., 2021). After the doctor assesses that his condition has improved, the patient is allowed to go home. Nevertheless, some patients go home forcibly for some reason. Here is the full data that describes the patient's condition after hospitalization.

Table 4. Frequency Distribution by patient discharge condition

Discharge condition	Participant	Percentages (%)
Get Better	240	95.62
Discharge	9	3.58
Death	1	0.40
Go Away	1	0.40
Total	251	100

Ideally a treatment, the patient is allowed to go home if the situation has improved and the treatment is continued on an outpatient basis. At Madani Hospital, Central Sulawesi Province in 2014, as many as 52 patients (70.3%) went home improved (Fahrul et al., 2014). This number is no better than what happened in this study. Treatment of schizophrenia takes a long time, this is because if the treatment is stopped, the symptoms of schizophrenia will recur. In addition to patients returning home in an improved state, some of them also went home forcibly, ran away and died. According to the data recorded in the medical records, the patient's forced discharge was caused by a request from the family who wanted the patient for outpatient treatment. Some of them are also caused because patients suffer from new case diseases other than schizophrenia such as ankle joint extra and pulmonary diseases, so patients must carry out treatment therapy for these diseases. For patients who run and die by suicide, it is likely due to a lack of supervision of the patient so something unexpected happens.

Unfortunately, most of these schizophrenic patients are back into hospitalization. This is because his condition has deteriorated for various reasons. This is evident with the large number of patients coming home with a record of improving conditions, but eventually having to return to undergo this treatment. The results are shown in Table 5.

Table 5. Frequency distribution based on repeat patient

Pasient State	No	Percentages (%)
Repeat patient	151	60.16
New patient	100	39.84
Total	251	100

Information from the hospital relapse patients because they do not routinely undergo outpatient treatment, do not comply with taking medicines at home (dropping out of drugs) and do not receive attention from the family. In addition to experiencing psychiatric disorders, some patients also experience other health

problems such as diabetes, hypertension and other diseases. This disease disorder is generally experienced before the patient is hospitalized. In addition to the disease disorders that have been experienced by patients before being hospitalized, patients also experience them while in the hospital, such as stomach disorders, inflammation, Covid-19 infections and so on. If someone is diagnosed with hypertension, diabetes, and heart disease while in the hospital, it is likely because the patient's family did not have a medical examination beforehand. Hypertension and diabetes mellitus are the most common diseases and these occur in schizophrenic patients who are more than 40 years old. Stress can cause hypertension by activating the sympathetic nervous system, which results in an intermittent increase in blood pressure (Andria, 2013). As for other diseases that most patients suffer from during hospitalization, there are 10 patients with stomach disease (3.98%). This may be due to side effects from the use of drugs that stimulate the digestive system, such as risperidone, clozapine, olanzapine, chlorpromazine and trifluoperazine.

4. Antipsychotic Drug Use

Table 6. Frequency distribution by antipsychotics drug used

Grade	Participants	Percentages (%)
<u>Single drug</u>		
Typical	5	1.99
Atypical	74	29.48
<u>Combination of two drugs</u>		
Typical + Typical	5	1.99
Atypical + Atypical	28	11.15
Typical + Atypical	70	27.89
<u>Combination of three drugs</u>		
3 Atypical	4	1.59
3 Typical	1	0.40
2 Atypical + 1 Typical	30	11.92
2 Typical + 1 Atypical	18	7.17
<u>Combination of four drugs</u>		
3 Atypical + 1 Typical	5	1.99
3 Typical + 1 Atypical	2	0.80
2 Atypical + 2 Typical	8	3.19
<u>Combination of 5 of drugs</u>		
3 Atypical + 2 Typical	1	0.40

Although psychosis includes many different disorders, the main treatment is to use of antipsychotic drugs. These medicinal drugs are referred to as neuroleptics or sedatives. Given single as well as a combination of several drugs. Antipsychotic drugs are also used to treat brain injuries, mania, toxic delirium, anxiety and depression, and other acute behavioural disorders (Stepnicki et al., 2018). In this study, the combined use of antipsychotics (68.53%) was more widely used compared to the use of single therapeutic antipsychotics (31.47%). The single antipsychotic used mostly comes from the atypical drug class, namely risperidone. A single antipsychotic is not very widely used. Of course, this is by the severity of the patient's state. Research conducted at Prof. Dr V. L. Ratumbuang Manado Hospital in 2013, also showed that only 21.1% of patients received single risperidone for their therapy (Jarut et al., 2013). Risperidone is the first atypical antipsychotic after clozapine. Risperidone is derived from a benzisoxazole derivative whose effectiveness is not only in the treatment of positive symptoms, but also in negative and cognitive disorders, and has some antidepressant properties, making it one of the most commonly used antipsychotics (Stepnicki et al., 2018). Atypical antipsychotics are more advisable to be chosen as drugs in the treatment of schizophrenia because they cause almost no extrapyramidal side effects (Julaeha et al., 2016). Research data conducted in New England also revealed that the severity of extrapyramidal symptoms in the drug risperidone is relatively low (Csernansky et al., 2002). In addition, risperidone also can occupy the D2 dopaminergic receptor so that it can increase patient adherence to taking medications (Yang and Tsai, 2017).

If the patient's condition is more severe, the administration of antipsychotic drugs is given more than one type, be it a combination of 2 or 3 typical group drugs, a combination of typical drugs with atypical, or a combination of atypical class drugs only. Given the condition that it needs to be hospitalized, the use of antipsychotic drugs in this study is also mostly a combination drug of two or more types of drugs. The use of combinations between typical and atypical or different atypical combinations is indeed advisable, but in fact, there is no data to support this therapy. If the use of a single antipsychotic fails, a combination experiment can

be tried in the short term. If there is no improvement within 6-12 weeks, one of the drugs should be discontinued (Dipiro J et al., 2015). The most widely prescribed drug is a combination of risperidone and haloperidol. Risperidone belongs to the antipsychotics of the second group (atypical) and haloperidol belongs to the class of antipsychotic drugs of the first group (typical). Most typical antipsychotics have a high affinity for blocking dopamine receptor 2, which is thought to elicit a strong exploratoryramidal response and usually only responds to positive symptoms (Jarut et al., 2013). Haloperidol is a group that has low potential to treat patients whose main symptoms are restlessness, rowdiness, difficulty sleeping and hyperactivity. Haloperidol can be used to relieve mania in psychosis patients. The use of combined antipsychotics causes the occurrence of extrapyramidal effects (Handayani, Cahaya and Srikartika, 2017). Extrapyramidal reactions can occur in 80% of patients treated with haloperidol (Jarut et al., 2013).

In addition to receiving antipsychotic drugs from typical and atypical groups, all inpatient schizophrenia patients in this study were also given adjuvant drugs. The Pharmacotherapy Handbook ninth edition algorithms state that the use of adjuvants can be given to overcome the effects of extrapyramidal. Several other studies have also found the use of this drug to improve treatment adherence since some antipsychotics can cause extrapyramidal especially seizures and unpleasant parkinsonism and cause patients to refuse to continue treatment (Musdalifah et al., 2019). The drug most widely used as an adjuvant drug is trihexyphenidyl in as many as 168 patients (66.93%). Another study at the Inpatient Installation of Rsjd Atma Husada Mahakam Samarinda in 2016, showed that as many as 52 patients (52.53%) were given trihexyphenidyl (Paramitha et al., 2019). In addition to trihexyphenidyl, lorazepam was the second most adjuvant drug given to schizophrenic patients in this study.

5. Dosage Uses

Table 9. Antipsychotic Dosage Use

Form	Dosage use	Participant	Percentage (%)
Typical	Apropriate	215	34.29
	Inaproporiate	18	2.87
Atypical	Apropriate	381	60.77
	Inaproposte	13	2.07
Total		627	100

Treatment of schizophrenia begins with the administration of low doses of antipsychotics, then is increased slowly according to the patient's condition. The possibility of the onset of side effects is also one of the considerations that affect the size of the drug dosage. The prescribed dose of the drug is compared with the recommended dose of the drug in the standard literature used, namely the Pharmacotherapy Handbook Ninth Edition Algorithms (Dipiro J et al., 2015). The results showed that the dosage of some antipsychotic drugs did not match the dosage indicated in the literature. There were 18 patients (2.87%) receiving typical class drugs with inappropriate doses, namely the drug chlorpromazine in 3 patients and the drug fluphenazine in 15 patients. Chlorpromazine is administered at a dose of 1 x 25 mg/day, supposedly for the initial dose administered of 50-150 mg/day or the usual dose of 300-1000 mg/day. While the injectable fluphenazine is given at a dose of 1 x 2.5 mg/ml/day, it should be at the initial dose used 5 mg/day or the usual dose of 5-20 mg/day. For atypical antipsychotic group drugs, there were 13 patients receiving inappropriate doses, namely in olanzapine drugs 4 patients and clozapine 9 patients. The use of olanzapine is administered at a dose of 1 x 2.5 mg/day and 2 x 15 mg/day, the initial dose should be given 5-10 mg/day or the usual dose of 10-20 mg/day. The use of clozapine is given a dose of 1 x 12.5 mg/day, the initial dose should be given 25 mg/day or the usual dose of 100-800 mg/day. In this case, the administered dose is lower than recommended. There may be several considerations according to the patient's condition, so the doctor gives a lower dose. The information is not in the patient's medical record. Long-term use of excess doses can cause damage to the liver and kidney organs, as well as possibly increase the risk of side effects of the drug. Meanwhile, the use of doses below the predetermined therapeutic dose range can cause less than optimal treatment because drug levels are below the minimum level that can produce therapeutic effects (Fadilla and Puspitasari, 2016).

III. CONCLUSION

The most schizophrenic category is paranoid type schizophrenia with the most drug use being a combination of 2 to 4 antipsychotics that vary between typical and atypical, there is no definite pattern in the selection of the drug. In addition to antipsychotic drugs, all patients received adjuvant treatment, most of which was trihexyphenidyl. It was still found that the administration of drugs at doses lower than the dose should be, namely the drugs chlorpromazine, fluphenazine, olanzapine, and clozapine, but no information was found that could explain the reason for the dose.

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