

Rational Use of Drugs in Patients with Schizophrenia at Inpatient Installation of Dr. Soeharto Heerdjan Hospital Jakarta, Indonesia

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INDEXING

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Mental Health

ABSTRACT

Schizophrenia is one of the mental health diseases in the inpatient department of Dr. Soeharto Heerdjan Hospital. Prescribing for Schizophrenia patients must be the right drug, the right patient, the right diagnosis, the right dose, and the right frequency of drug administration. This study aims to describe the use of drugs in patients with Schizophrenia in the inpatient installation at Dr. Soeharto Heerdjan Mental Hospital. The method used was a descriptive study of schizophrenia patients. The study population was patients of Dr. Soeharto Heerdjan Mental Hospital in the period October-December 2021. Total sampling with inclusion criteria was used from medical record data. The authors obtained 692 samples. The data is displayed in the form of a frequency distribution table. The results obtained were 69.83% male and 30.17% female; the youngest patient was 17 years old, and the oldest patient was 79 years old. The authors obtained 1765 prescriptions from single prescriptions to 54 drug combination prescriptions. Drug administration for Schizophrenia is the right patient, diagnosis, and frequency of drug administration, but still found 5.22% inappropriate drug administration and 5.22% inappropriate process. Overall, the rational use of drugs at Dr. Soeharto Heerdjan Mental Hospital is still within the limits of the rational drug use module issued by the Ministry of Health in 2011. However, there needs to be improvement (quality control) at the institution for drug therapy and dosage in schizophrenia patients because there are still cases of drug dose combinations that exceed the maximum dose when compared to drug rationality guidelines based on the Pharmacotherapy Handbook Ninth Edition Algorithms.

Kata kunci:

Penggunaan obat rasional;
Schizophrenia;
Obat Antipsychotic;
Kesehatan mental

Skizofrenia merupakan salah satu penyakit Kesehatan jiwa yang ada di Rumah Sakit Jiwa Dr. Soeharto Heerdjan di bagian rawat inap. Pemberian resep di rumah sakit ini harus mempunyai standar obat yang tepat, pasien yang tepat, diagnosis yang tepat dan frekuensi pemberian obat yang tepat. Untuk mengetahui gambaran penggunaan obat pada pasien skizofrenia di Rumah sakit merupakan tujuan penelitian ini. Populasi dari penelitian ini merupakan pasien skizofrenia pada periode Oktober – Desember 2021 yang dilakukan secara deskriptif dan diambil semuanya dengan kriteria inklusi. Sampel yang didapat 692 responden. Data ditampilkan dalam bentuk tabel distribusi frekuensi. Hasil yang diperoleh adalah 69,83% laki-laki dan 30,17% perempuan, pasien termuda berusia 17 tahun, dan pasien tertua berusia 79 tahun. Diperoleh 1765 resep yang terdiri dari resep tunggal dan 54 resep kombinasi obat. Pemberian obat untuk Skizofrenia sudah memenuhi kriteria pasien yang tepat, diagnosis yang tepat, dan frekuensi pemberian obat yang tepat namun masih ditemukan 5,22% pemberian obat yang tidak tepat dan 5,22% yang tidak tepat proses. Secara keseluruhan penggunaan obat yang rasional di Rumah Sakit Jiwa Dr Soeharto Heerdjan masih dalam batasan koridor berdasarkan modul penggunaan obat rasional yang dikeluarkan oleh Kementerian Kesehatan RI tahun 2011 namun perlu adanya perbaikan (quality control) di institusi tersebut

INTRODUCTION

Schizophrenia is a mental disorder characterized by multiple psychiatric symptoms, including hallucinations, delusions, disorganized speech, disorganized or catatonic behavior, and negative symptoms. Some patients experience cognitive symptoms, such as difficulty with attention, working memory, and executive functioning (Girdler et al., 2019). Schizophrenia is a severe, lifelong mental disorder affecting around 1% of the world's population (Saha et al., 2005). The disease is characterized by positive, negative, and cognitive symptoms and can lead to significant functional impairment. Medication treatment became available with the development of chlorpromazine in the 1950s, and antipsychotic medication development continues to this day. Unfortunately, not all patients respond to antipsychotic medications. Overall estimates suggest that one-fifth to one-half of patients have treatment-resistant Schizophrenia (TRS) (Elkis, 2007) (Essock et al., 1996) (Lieberman, 1999) (Lindenmayer, 2000).

Psychoses are a range of mental disorders characterized by delusions (false beliefs), various types of hallucinations (false hearing, sight, and smell), and highly disorganized thinking within a clear sensorium. Severe mental disorders are called psychoses; one example of psychosis is Schizophrenia (Bertram G. Katzung et al., 2010). Schizophrenia is a chronic heterogeneous syndrome characterized by disordered thinking, delusions, hallucinations, behavioral changes, and impaired psychosocial functioning (Dipiro et al., 2015). Schizophrenia is usually diagnosed during adolescence or late adolescence and early adulthood. Schizophrenia is rare in children, with an initial peak between the ages of 15 to 25 years for men and 25 to 35 years for women (Maslim Rusdi, 2013).

Schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%) worldwide. This rate is 1 in 222 people (0.45%) among adults (2). It is not as common as many other mental disorders. Onset is most often during late adolescence and the twenties, and the onset tends to happen earlier among men than among women (World Health Organization (WHO), 2022). Although the prevalence of Schizophrenia is recorded at relatively lower levels than other types of mental disorders, Schizophrenia is one of the 15 leading causes of disability worldwide, and individuals with Schizophrenia are more likely to have an increased risk of suicide (National Institute of Mental Health, 2019). Basic Health Research (Riskesdas) 2018 data shows that the prevalence of mental-emotional disorders in the Indonesian population aged ≥ 15 years is 9.8%. The prevalence of Schizophrenia is 7% per 1,000 households, while for the South Sumatra region, Schizophrenia is prevalent in 11% per 1,000 households (Badan Penelitian dan Pengembangan Kesehatan, 2019). In South Sumatra, 110 households out of 1,000 households have household members with severe Schizophrenia.

One way to treat Schizophrenia is by using antipsychotics. Antipsychotic drugs are the main effective therapy for Schizophrenia. Almost all acute psychotic episodes in schizophrenia patients require treatment with antipsychotic drugs (Lally & MacCabe, 2015). There are two classifications of antipsychotics: typical antipsychotics (first generation) and atypical antipsychotics (second generation). The difference between the two groups is the side effects that occur. Appropriate use of antipsychotics is very important for treatment therapy and can affect the patient's willingness to accept and continue treatment (Dixon & Perkins, 1995). The sheer number of antipsychotics available poses problems in practice, especially

regarding how they are selected and used. Of the many therapies given to schizophrenia patients, many still use first-generation drugs, even though first-generation antipsychotics cause more side effects than second-generation antipsychotics. Second-generation (atypical) antipsychotics have a lower risk of side effects from extrapyramidal symptoms, such as acute dystonia, ataxia, tardive dyskinesia, and symptoms of parkinsonism (Lally & MacCabe, 2015).

A study on the Evaluation of the Appropriateness of Antipsychotic Use in Inpatient Schizophrenia Patients showed that inappropriate drugs 22.4%, inappropriate patients 3.4%, inappropriate doses 25.9%, and inappropriate frequency 31.0%. In this study, there were therapeutic problems in schizophrenia patients, fluphenazine and haloperidol, which have potential interactions that can cause an increase in the QTc interval. Other problems are contraindications found between the drugs trihexyphenidyl and diazepam in patients with diabetes mellitus (Fadilla & Puspitasari, 2016). Another study on the Evaluation of Antipsychotic Treatment in Schizophrenia Patients at Sambang Lihum Mental Hospital showed inappropriate drugs at 3.3%, inappropriate doses at 2.5%, and inappropriate frequency at 38.8%. In this study, there were problems with therapy in patients with Schizophrenia. The dose of 2 patients was inappropriate because the dose of clozapine was insufficient, namely 12.5 mg/day, whose dose range was 25-50 mg/day and the target dose range was 100-800 mg/day (Faqih et al., 2021).

Based on these studies, there were still incidents of irrational use of drugs, and therefore, it is necessary to conduct research in other health institutions. The study was conducted on the Rational Use of Drugs in Inpatient Schizophrenia Patients at Dr. Soeharto Heerdjan Mental Hospital to determine the rational use of drugs in schizophrenia patients. The purpose of the study was to describe the use of drugs in schizophrenia patients in inpatient installations at Dr. Soeharto Heerdjan Mental Hospital.

RESEARCH METHOD

This research is a descriptive study of the use of drugs in schizophrenia patients in inpatient installations at Dr. Soeharto Heerdjan Mental Hospital. This research was conducted from March to September 2022 at Dr. Soeharto Heerdjan Mental Hospital. The population in this study were all inpatient schizophrenia patients at Dr Soeharto Heerdjan Mental Hospital for the period October - December 2021 and administratively recorded in medical records. The sampling technique in this study used homogeneous purposive sampling and total sampling with inclusion criteria. Medical record data taken were all medical record data that met the inclusion criteria are patients with Schizophrenia in the period October - December 2021 and data that had all complete medical records including medical record number, name, date of birth, gender, diagnosis, drug name, drug dose, drug preparation, drug quantity, and drug dosage. Data collection in this study was carried out retrospectively by recording the data needed for research from secondary data and medical records of inpatient schizophrenia patients at Dr. Soeharto Heerdjan Mental Hospital from October to December 2021. Data search was carried out retrospectively, starting from the observation of patient medical records for the period October - December 2021 at the Medical Records Installation of Dr. Soeharto Heerdjan Mental Hospital. Data collection and recording of medical record data: patient name, patient age, patient gender, and drug use data. The use of drugs against these patients is then classified based on the rationality of

therapy, namely Patient Appropriateness, Indication Appropriateness, Dose Appropriateness, and Frequency Appropriateness of therapy administration in patients with Schizophrenia and compared with the rationality of therapy administration in schizophrenia patients based on guidelines from the Pharmacotherapy Handbook Ninth Edition Algorithms.

Based on the diagnosis category, 692 samples were obtained. Based on the number of patients, 633 samples were obtained. Based on the prescription, 1765 prescriptions were obtained. Data processing and analysis were carried out descriptively to describe a situation objectively (Notoatmodjo, 2010). Data obtained from medical records are presented in the form of tables and descriptions. The data taken is medical record data from Dr. Soeharto Heerdjan Mental Hospital. This data is included in the annual report of this hospital, and the validity of the data from the results of this research report is also included. This data was cross-checked with administrative data, pharmacy data, and hospital annual report data.

RESULTS AND DISCUSSION

1. Patient Characteristics

Table 1. Patient Characteristics Based on Diagnosis, Gender, and Age

No.	Patient Characteristics	Total	%
Diagnosis			
1	Paranoid Schizophrenia (F.20.0)	472	68.21
2	Undifferentiated Schizophrenia (F.20.3)	123	17.77
3	Schizoaffective (F.25)	41	5.92
4	Schizophrenia with Psychotic Symptoms (F.23.2)	10	1.45
5	Bipolar (F.31)	6	0.87
6	Residual Schizophrenia (F.20.5)	5	0.72
7	Schizophrenia and other mental illnesses	35	5.06
	Total	692	100.00
Gender			
1	Male	442	69.83
2	Female	191	30.17
	Total	633	100.00
Age			
1	<12 - 25	113	17.85
2	26 - 45	407	64.30
3	46 - 65	106	16.75
4	> 65	7	1.11
	Total	633	100.00

Source: Analysis of the primary data, 2021

Table 1 shows the total of 692 inpatients at the inpatient installation of Dr. Soeharto Heerdjan Hospital during October - December 2021. There were 633 patients with a primary diagnosis of Schizophrenia. This number includes Schizophrenia with comorbid symptoms. Paranoid Schizophrenia dominated the number of patients, with a total of 481 patients, divided into 472 paranoid schizophrenia patients and the rest with comorbidities. The second highest number was followed by undifferentiated schizophrenia cases, with a total of 146 patients, including 123 pure undifferentiated schizophrenia plus comorbid symptoms. In the study conducted by Scott (Scott et al., 2021), major depressive disorders accounted for 42%, neurocognitive (33%), anxiety (11%), substance-related (8%), and schizophrenia

spectrum (6%) of the five most frequent diagnoses made by the CPSP clinical team. Further, 97% of all patients showed evidence of a chronic physical condition.

Based on the data collected, there were a total of 633 patients with a diagnosis of Schizophrenia who were admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital from October - December 2021. Of these, the number of male patients is greater when compared to female patients. Inpatients were dominated by 442 people of male gender (69.83%) and 191 people of female gender (30.17%) (Table 1).

This study found (Table 1) that schizophrenia patients admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital were dominated by male patients (69.83%). In the study conducted by Scott (Scott et al., 2021), most patients with mental disorders were 57.8% female. A systematic study conducted by Labaka (Labaka et al., 2018) suggests that the possibility of different biological patterns between women and men with depressive disorders may have important implications for treatment.

Schizophrenia patients admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021 were spread across a wide age range. The youngest patient admitted was 17 years old, and the oldest patient was 79 years old. When categorized by age group, hospitalized schizophrenia patients are dominated by the 26 - 45 years age group, followed by the -12 - 25 years age group, and the 46 - 65 years age group (Table 1).

2. Psychotropic Prescription

Of the 633 patients with a diagnosis of Schizophrenia admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021, there were a total of 1,765 prescriptions recorded at the pharmacy installation. Of these many prescriptions, there were also non-psychotropic drugs prescribed to patients due to the presence of comorbidities in patients with Schizophrenia, as well as additional complaints during the patient's stay at the inpatient installation, such as headache, toothache, nausea, and vomiting, comorbid chronic kidney disorders, diarrhea, cough or allergies that require clinicians to prescribe appropriate non-psychotropic drugs to treat additional complaints or comorbid management in patients.

Table 2. Characteristics of Antipsychotic Prescriptions for Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021

	Period		
	Number of Typical Antipsychotics	Number of Atypical Antipsychotics	Number of Recipes
Single Drug	1	0	99
	0	1	284
Combination of 2 Drugs	2	0	8
	1	1	91
	0	2	747

Table 2. Characteristics of Antipsychotic Prescriptions for Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period (cont')

	Number of Typical Antipsychotics	Number of Atypical Antipsychotics	Number of Recipes
Combination of 3 Drugs	3	0	5
	2	1	12
	1	2	261
	0	3	200
Combination of 4 Drugs	4	0	1
	3	1	0
	2	2	25
	1	3	22
	0	4	8
Combination of 5 Drugs	1	4	1
	2	3	1
Total			1765

Source: Analysis of the primary data, 2021

Table 2 shows the total prescriptions, a combination of two atypical drugs dominated antipsychotic prescriptions. Prescriptions of a combination of two atypical antipsychotics were recorded with a total of 747 prescriptions, followed by a single atypical antipsychotic prescription 284 times, then a combination of 3 antipsychotics (2 atypical + 1 typical) 261 prescriptions and a combination of 3 atypical antipsychotics 200 prescriptions. Meanwhile, the least number of prescriptions for a combination of 5 antipsychotics was 2 prescriptions.

Experts have developed the development diagnosis of Schizophrenia with ICD-11 and DSM-5 for a long time (Tandon et al., 2013) (Gaebel et al., 2012) (Gaebel et al., 2013). These guidelines make the right diagnosis for the right patient in this hospital without any contradiction

Table 3. Antipsychotic Combinations in Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period based on Drug Type

	Antipsychotics		Number of Recipes
5-Drug Combination	2 Typical: Trifluoperazine 3x5 mg; Fluphenazine Ampoule 1x25 mg	3 Atypical: Risperidone 2x3 mg; Clozapine 1x25 mg; Quetiapine 1x300 mg	1
	1 Typical: Haloperidol Ampoule 1x5 mg	4 Atypical: Risperidone 2x2 mg; Clozapine 1x50 mg; Haloperidol Ampoule 1x5 mg; Aripiprazole 1x10 mg; Quetiapine 1x300 mg;	1

Table 3. Antipsychotic Combinations in Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period based on Drug Type (cont')

Antipsychotics			Number of Recipes
4-Drug Combination	4 Typical: Haloperidol 3x5 mg; Trifluoperazine 2x5 mg; Chlorpromazine 1x100 mg; Haloperidol 2x5 mg ampoule	0 Atypical:	1
	2 Typical: Trifluoperazine 2x5 mg or 3x5 mg; Haloperidol 2x5 mg; Haloperidol Ampoule 1x5 mg; Fluphenazine Ampoule 1x25 mg	2 Atypical: Risperidone 2x2 mg or 2x3 mg; Aripiprazole 1x10 mg; Clozapine 1x12.5 mg or 1-2x25 mg or 1x100 mg; Olanzapine 1x10 mg; Quetiapine 1x200-400 mg	25
	1 Typical: Trifluoperazine 2x5 mg; Haloperidol 2x5 mg; Haloperidol Ampoule 1x5 mg; Fluphenazine 1x25 mg ampoule	3 Atypical: Olanzapine 1x10 mg; Olanzapine Ampoule 1x10 mg; Risperidone 2x2 mg or 2x3mg; Clozapine 1x25 mg or 2x25 mg or 1x100 mg; Quetiapine 1x300 mg; Aripiprazole 1x5 mg or 1x10 mg;	22
	0 Typical:	4 Atypical: Risperidone 2x2 mg; Clozapine 2x25 mg; Aripiprazole 1x10 mg; Quetiapine 1x300mg	1
		Risperidone 2x2 mg; Aripiprazole 1x15 mg; Quetiapine 1x300 mg; Olanzapine 1x10 mg	1
		Risperidone 2x3 mg; Clozapine 1x100 mg; Quetiapine 2x200 mg; Olanzapine 1x10 mg ampoule	1
		Risperidone 2x2 mg; Clozapine 1x50 mg; Aripiprazole 1x10 mg; Quetiapine 1x300 mg	2
		Risperidone 2x2 mg; Clozapine 1x25 mg; Quetiapine 1x200 mg; Olanzapine 2x10 mg ampoule	1
		Risperidone 2x2 mg; Clozapine 1x100 mg; Quetiapine 1x100 mg; Olanzapine 1x10 mg ampoule	1
		Risperidone 2x3 mg; Aripiprazole 1x15 mg; Quetiapine 1x300 mg; Olanzapine Ampul 1x10 mg	1
	3 Typical: Haloperidol 3x5 mg; Trifluoperazine 2x5 mg; Chlorpromazine 1x100 mg	0 Atypical:	5

Table 3. Antipsychotic Combinations in Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period based on Drug Type (cont')

	Antipsychotics		Number of Recipes
3-Drug Combination	2 Typical: Trifluoperazine 2x5 mg; Chlorpromazine 1x100 mg; Haloperidol 1x5 mg; Haloperidol 1x5 mg ampoule; Fluphenazine 1x25 mg ampoule	2 Atypical: Risperidone 2x2 mg or 2x3 mg; Aripiprazole 1x15 mg; Olanzapine 1x10 mg; Clozapine 1x25 mg or 1x100 mg	12
	1 Typical: Haloperidol 1x5 mg; Haloperidol Ampul 1x5 mg; Trifluoperazine 2x5 mg; Fluphenazine Ampul 1x25 mg; Chlorpromazine 1x100 mg	3 Atypical: Risperidone 2x2 mg or 2x3 mg; Olanzapine 1x5 mg or 1x10 mg; Clozapine 1x25 mg or 1x100 mg; Quetiapine 1x200 mg or 2x200 mg or 1x300 mg or 1x400 mg; Aripiprazole 1x5 mg or 1x10 mg	261
	0 Typical:	3 Atypical: Risperidone 2x2 mg or 2x3 mg; Olanzapine 1x10 mg or 2x10 mg; Olanzapine Ampoule 1x10 mg or 2x10 mg; Clozapine 1x25 mg or 1x50 mg or 2x25 mg or 1x100 mg or 2x100 mg; Quetiapine 1x100 mg or 1x200 mg or 1x300 mg or 1x400 mg; Aripiprazole 1x5 mg or 1x10 mg or 1x15 mg;	200
2-Drug Combination	2 Typical: Trifluoperazine 3x5 mg Fluphenazine Ampoule 1x25 mg	0 Atypical:	1
	Trifluoperazine 3x5 mg Chlorpromazine 1x50 mg	-	2
	Haloperidol Ampoule 2x5 mg Fluphenazine Ampoule 1x25 mg	-	1
	Haloperidol 3x5 mg Chlorpromazine 1x50 mg	-	2
	Haloperidol 2x5 mg Fluphenazine Ampoule 1x25 mg	-	1
	Haloperidol 2x5 mg Trifluoperazine 2x5 mg	-	1
	1 Typical: Haloperidol Ampoule 1x5 mg or 2x5 mg; Trifluoperazine 2x5 mg or 3x5 mg; Haloperidol 1x5 mg or 2x5 mg; Fluphenazine Ampoule 1x25 mg; Chlorpromazine 1x100 mg;	1 Atypical: Risperidone 2x2 mg or 2x3 mg; Quetiapine 1x200 mg or 1x300 mg or 1x400 mg; Clozapine 1x25 mg or 1x50 mg; Olanzapine 1x5 mg or 1x10 mg; Aripiprazole 1x15 mg;	91

Table 3. Antipsychotic Combinations in Schizophrenia Patients in the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period based on Drug Type (cont')

Antipsychotics			Number of Recipes
2-Drug Combination	0 Typical:	2 Atypical:	747
		Aripiprazole 1x5 mg or 1x10 mg; Clozapine 1x25 mg or 1x50 mg or 1x100 mg; Olanzapine 1x5 mg or 1x10 mg; Olanzapine Ampoule 1x10 mg or 2x10 mg; Quetiapine 1x200 mg or 2x200 mg or 1x300 mg or 1x400 mg; Quetiapine 1x200 mg or 2x200 mg or 1x300 mg or 1x400 mg; Risperidone 2x2 mg or 2x3 mg;	
	1 Typical:	0 Atypical:	99
	Haloperidol Ampoule 1-2x5 mg; Haloperidol 2x5 mg; Trifluoperazine 2x5 mg; Fluphenazine Ampoule 1x25 mg;		
Single Drug	0 Typical:	1 Atypical:	284
		Aripiprazole 1x5 mg or 1x10 mg; Clozapine 1x25 mg or 1x50 mg or 1x100 mg; Olanzapine 1x5 mg or 1x10 mg; Olanzapine Ampoule 1x10 mg or 2x10 mg; Quetiapine 1x200 mg or 2x200 mg or 1x300 mg or 1x400 mg; Risperidone 2x2 mg or 2x3 mg;	

Source: Analysis of the primary data, 2021

Combination antipsychotic therapy is the most prescribed therapy for schizophrenia patients admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital. A combination of two antipsychotics was most commonly given to patients, namely 846 times (47.93%). More specifically, the combination of two atypical antipsychotics was mostly given to inpatients 747 times (42.32%). In another study in China (Wang et al., 2021), which is a national survey his research that antipsychotic polypharmacy is a common drug given to patients with mental disorders, clozapine is the most commonly prescribed as an antipsychotic in China either as a single therapy or combination therapy.

Table 4. Characteristics of Adjuvant Prescriptions for Schizophrenia Patients at the Inpatient Installation of Dr. Soeharto Heerdjan Hospital October - December 2021

Type of medication		Number of prescriptions
Antiparkinsonian:		
Single Drug	Antiparkinsonian:	1521
	Trihexyphenidyl	
	Subtotal	

Table 4. Characteristics of Adjuvant Prescriptions for Schizophrenia Patients at the Inpatient Installation of Dr. Soeharto Heerdjan Hospital October - December 2021 (cont')

Type of medication	Number of prescriptions
Antiparkinsonian:	
Single Drug	Anticonvulsants: 522
	Clobazam
	Diazepam
	Diazepam Ampoule
	Divalproate
	Lorazepam
	Phenytoin
	Subtotal
2-Drug Combination	Divalproate, Lorazepam 67
	Phenytoin, Diazepam Ampoules
	Phenytoin Diazepam
	Subtotal
3-Drug Combination	Divalproate, Lorazepam, Clobazam 5
	Divalproate, Lorazepam, Phenytoin
	Subtotal
4-Drug Combination	Diazepam Ampoule, Lorazepam, 1
	Divalproate, Clobazam
	Subtotal
Total	595
Antidepressants:	
Single Drug	Escitalopram
	Fluoxetine
	Sertraline
Total	103
Adjunct Antidepressant:	
Single Drug	Lithium
Total	21
Opioids:	
Single Drug	Codeine
Total	1
Vitamins:	
Single Drug	Vitamin B6, Folic Acid 8
2-Drug Combination	Vitamin B6 + Folic Acid 1
Total	9
Mucolytics:	
Single Drug	Ambroxol
Total	1
Antihistamines:	
Single Drug	Diphenhydramine Ampoule 2
	Ikadryl Syr 1
Total	3
PPI:	
Single Drug	Omeprazole 2x40 mg Ampoule
Total	1
Anti-nausea:	
Single Drug	Ondansetron 3x8 mg Ampoule
Total	1

Table 4. Characteristics of Adjuvant Prescriptions for Schizophrenia Patients at the Inpatient Installation of Dr. Soeharto Heerdjan Hospital October - December 2021 (cont')

	Type of medication	Number of prescriptions
Analgesics/Antipyretics:		
Single Drug	Mefenamic acid 3x500 mg tab	2
	Paracetamol 3x500 mg tab	1
	Total	3
Antidiarrhea:		
Single Drug	New Diatab	
	Total	1
Antibiotics:		
Single Drug	Amoxicillin 3x500 mg tab	3
	Ciprofloxacin 2x500 mg tab	1
	Total	4

Source: Analysis of the primary data, 2021

The most commonly prescribed non-antipsychotic drugs in hospitalized patients were antiparkinsonians, namely trihexyphenidyl (1521 times), followed by anticonvulsants (595 times) and antidepressants (103 times).

Adjuvant therapy varies depending on the potential side effects of antipsychotics as well as other symptoms or additional diagnoses present in hospitalized schizophrenia patients. In this study, adjuvant therapy was dominated by the administration of antiparkinsonians in as many as 1521 cases. Where the administration of antipsychotics can potentially trigger side effects in the form of extrapyramidal syndromes such as pseudo parkinsonism can be overcome by the administration of trihexyphenidyl with doses starting from 2 mg/day, dystonia and akathisia, which can be overcome by administering benzodiazepines such as Diazepam or Lorazepam, as well as the risk of seizures which can also be overcome by anticonvulsants such as Clobazam or Divalproex. In addition, the patient's comorbid conditions and additional complaints also affect the amount of adjuvant therapy given to the patient. In this study, there were patients with comorbidities such as hypertension, chronic kidney disease, and additional complaints such as diarrhea and ARI. So, schizophrenia patients were also given additional therapies such as Amlodipine, Folic Acid, and antibiotics for symptoms of infection that occurred. This finding is close to the results of a study conducted in Turkey (Civan Kahve et al., 2020), where they found that it has been found that the use of multiple antipsychotics does not shorten but rather may prolong hospitalization and has no effect in reducing re-hospitalization. It has been observed that drug combinations are generally performed together with a depot treatment, clozapine treatment is preferred less frequently in combinations, and clinicians have proven their effectiveness in the drug combination they prefer. Research conducted in China and Japan in 2018 (Qiu et al., 2018) showed that the most common combinations were two oral antipsychotics. Combinations of more than two drugs were uncommon in China. However, they were prescribed for patients in Japan among patients treated with monotherapy in China, and Japan switched to antipsychotic polypharmacy during follow-up. Younger patients were more likely to switch to antipsychotic polypharmacy than older patients.

3. Evaluation of the Appropriateness of Antipsychotic Use

3.1. Patient Appropriate

Appropriate patient is the accuracy of drug use adjusted to the patient's condition in terms of the presence or absence of drug contraindications. If one of the drugs used by the patient has contraindications, then it is said that it does not meet the criteria for the right patient (Kuntarti, 2014).

Of the 633 patients with a diagnosis of Schizophrenia admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021, all received medication without any contraindications.

3.2. Appropriate Indication

Appropriate indication means that the patient is given drugs according to the doctor's diagnosis, and there is a clear symptom (Kesehatan Kemenkes RI, 2011). In this study, schizophrenia patients were given antipsychotics according to the indications of their disease.

Of the 633 patients with a diagnosis of Schizophrenia admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021, all received drugs according to the indication of the disease, namely Schizophrenia.

3.3. Appropriate Medicine

Appropriate medication is the selection of drugs that are primary and appropriate for the patient. One way to identify appropriate antipsychotic drugs is by knowing whether there are drug interactions or potential drug interactions that occur (Kuntarti, 2014). Identification of potential drug interactions was examined using Medscape software, and potential major interactions that might occur in patients were looked at. Drug inaccuracy is one of the most potentials in therapeutic failure and the emergence of unwanted side effects.

From a total of 1765 prescriptions given to schizophrenia patients, 54 prescriptions for drug combinations could potentially cause drug interactions. The administration of such therapy was found in 33 patients.

Of the 633 patients with a diagnosis of Schizophrenia admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021, there were a total of 33 patients (5.22%) who received combination prescriptions with the potential for drug interactions. However, in this study, no further investigation was carried out on whether the effects of these drug interactions appeared on the patients concerned.

3.4. Correct Dosage

Excessive dosing, especially for drugs with a narrow therapeutic range, will always risk side effects. Conversely, a dose that is too low will not guarantee the achievement of the desired therapeutic level (Kuntarti, 2014). The dose of antipsychotic drugs for Schizophrenia starts at a low dose and then increases slowly. It can also be immediately given a high dose depending on the patient's condition and the possibility of side effects (Fahrul et al., 2014).

Of the 633 patients with a diagnosis of Schizophrenia admitted to the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital during October - December 2021, there were 2 patients (0.32%) who received prescriptions with total doses exceeding the recommended daily dose. In this study, 2 patients received Haloperidol therapy with a total

dose of > 20 mg/day, with a combination of Haloperidol tablets and Haloperidol ampoules. However, this study did not investigate whether there were potential adverse effects from the total dose of medication given to the patients.

3.5. Precise Frequency

Medication frequency should be practical and as simple as possible to facilitate patient compliance. The higher the frequency of medication administration per day (e.g., 4 times a day), the lower the compliance rate. Medication taken 3 times a day means that the medication should be taken at intervals of every 8 hours (Kesehatan Kemenkes RI, 2011). The frequency of administration will be related to the levels in the blood that produce the therapeutic effect of the drug (Fahrul et al., 2014).

Of the 633 patients with a diagnosis of Schizophrenia who were admitted to the inpatient installation of Dr Soeharto Heerdjan Mental Hospital during October - December 2021, all received therapy with the number of administration frequencies by the recommended rules.

Table 5. Recapitulation of the Rationality of Antipsychotic Administration in Schizophrenia Patients at the Inpatient Installation of Dr. Soeharto Heerdjan Mental Hospital October - December 2021 Period

Category	Appropriate	Inappropriate	Percentage
Patients	633 patients	0	100%
Indications	633 patients	0	100%
Drugs	600 patients	33 patients	94.78%
	1711 prescriptions	54 prescriptions	96.94%
Dosage	631 patients	Over Dose: 2 patients	99.68%
Frequency	633 patients	0	100%

Source: Analysis of the primary data, 2021

From the data collected in this study, it appears that the use of antipsychotics in schizophrenic patients at the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital for the October - December 2021 period is quite good, with a percentage above 90%. Based on the parameters of the right patient, right indication, and right frequency, it can be seen that the rationality of antipsychotic administration reaches a percentage of 100%. However, based on the parameters of the right drug and the right dose, there are still cases of inaccuracy found, namely 5.22% inappropriate drugs (potential drug interactions) and only 0.3% inappropriate doses (doses exceeding recommended daily levels) based on the Pharmacotherapy Handbook 9th edition (2015) (Dipiro et al., 2015).

From the total data collected in this study, it appears that the use of antipsychotics in schizophrenic patients at the inpatient installation of Dr. Soeharto Heerdjan Mental Hospital for the October - December 2021 period is quite good, with a percentage above 90%. Based on the parameters of the right patient, right indication, and right frequency, it can be seen that the rationality of antipsychotic administration reaches a percentage of 100%. However, based on the parameters of the right drug and the right dose, there are still cases of inaccuracy found, namely 5.22% inappropriate drugs (potential drug interactions) and only 0.3% inappropriate doses (doses exceeding recommended daily levels) based on the

Pharmacotherapy Handbook 9th edition (2015). Inappropriate prescribing or the absence of appropriate prescriptions has been found in a French study of the French Housing First (FHF) program for homeless people (Fond et al., 2019) who should have had more appropriate psychotropic prescriptions for homeless Schizophrenia or Bipolar Disorders (HSB).

This study only covers the condition of patients with schizophrenia symptoms with their demographics, drug administration, and drug analysis based on the inclusion criteria above. For research on side effects that arise from therapy in schizophrenia patients, further research or separate research is needed.

CONCLUSION

The use of drugs in schizophrenia inpatient installations at Dr. Soeharto Heerdjan Hospital has been in the right patient, with the right diagnosis and the right frequency of treatment. For drugs and doses of schizophrenia patients, there are still some that are not appropriate. There needs to be an increase in prescribing and dosing in schizophrenia patients. Overall, the rational use of drugs for inpatients with schizophrenia symptoms is still at the limit by the rational use of drugs module guidelines issued by the Ministry of Health of the Republic of Indonesia in 2011.

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