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Overview of Drug Use Patterns and Side Effects of Antipsychotic Drugs by Using the Adverse Drug Reactions Checker Tool in Schizophrenic Patients

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Abstrak

Skizofrenia merupakan gangguan pikiran berupa kombinasi dari halusinasi, delusi, dan berpikir tidak teratur dan perilaku. Tujuan penelitian ini untuk mengetahui gambaran pola penggunaan obat dan efek samping obat antipsikotik dengan menggunakan tools adverse drug reactions checker pada pasien skizofrenia di Rumah Sakit Ernaldi Bahar Palembang pada tahun 2020. Penelitian ini menggunakan metode deskriptif dengan pengambilan data secara retrospektif dari pasien skizofrenia rawat inap di Rumah Sakit Ernaldi Bahar Palembang 2020. Berdasarkan hasil penelitian diperoleh data pasien skizofrenia yang paling banyak pada laki-laki (76,25%), rentang usia 17-30 tahun (48,75%), skizofrenia yang paling banyak diderita yaitu skizofrenia paranoid (76,25%), dengan pendidikan yang paling banyak pada SMA (35%), penggunaan obat antipsikotik tunggal yang paling banyak digunakan adalah risperidone sebanyak 38,125%, penggunaan kombinasi obat antipsikotik yang paling banyak adalah risperidone-clozapine 7,5% dan chlorpromazine-risperidone 7,5% dan penggunaan obat non antipsikotik yang paling banyak digunakan adalah trihexyphenidyl sebanyak 58,75%. Efek samping obat tunggal yang terjadi yaitu risperidone menimbulkan efek samping berupa pontesial munculnya gejala ekstrapiramidal, sedasi. Clozapine menimbulkan efek samping hipotensi ortostatik, gejala ekstrapiramidal. Kombinasi risperidone-clozapine menimbulkan efek samping hipotensi ortostatik gejala ekstrapiramidal. Clozapine-Haloperidol-Risperidone menimbulkan efek samping berupa penambahan berat badan efek samping yang tercatat di rekam medik pasien juga terdapat pada pembandingan Tools Adverse Drug Reactions Checker yang digunakan medscape, drug.com, lexicomp. Kata Kunci: *antipsikotik, skizofrenia, efek samping, Tools Adverse Drug Reactions*

Abstract

Schizophrenia is a thought disorder combining hallucinations, delusions, and disorganized thinking and behavior. This study aimed to describe the use of drugs and analyze the side effects of antipsychotic drugs used in the adverse drug reactions checker tool in schizophrenia patients at the Ernaldi Bahar Hospital in Palembang in 2020. This study used a descriptive method with retrospective data collection from inpatient schizophrenia patients at the Ernaldi Bahar Hospital, Palembang, 2020. Based on the results of the study, the data on schizophrenia patients was mostly male (76.25%), aged 17-30 years (48.75%), the most common schizophrenia was paranoid schizophrenia (76.25%), with the highest education level was in senior high school (35%), the most widely used single antipsychotic drug was Risperidone 38.125%, the most widely used antipsychotic drug combination was risperidone-clozapine 7.5% and chlorpromazine-risperidone 7.5%. The most widely used non-antipsychotic drug was trihexyphenidyl, as much as 58.75%. The side effect of a single drug that occurs, namely Risperidone, caused side effects in the form of potential extrapyramidal symptoms of sedation. The combination of risperidone-clozapine caused extrapyramidal symptoms and orthostatic hypotension as a side effect. Clozapine-haloperidol-risperidone caused side effects in the form of weight gain. Side effects recorded in the patient's medical records were also found in the comparison tools adverse drug reactions checker used by Medscape, drug.com, and Lexicomp.

Keywords: antipsychotic, schizophrenia, side effects, Tools Adverse Drug Reactions

INTRODUCTION

Schizophrenia is a chronic heterogeneous syndrome characterized by disordered thought patterns, delusions, hallucinations, inappropriate behavior changes, and impaired psychosocial functioning (Wells et al., 2015). Data obtained from WHO (2015) shows the number of people who experience schizophrenia worldwide is 7 out of 1000, which is believed to be 21 million people. Three out of four cases of symptoms that appear occur at the age of 15-34 years (Stuart, 2013).

Based on the results of RISKESDAS research (2018), the prevalence of schizophrenia in Indonesia in 2013 was 1.7% and experienced a significant increase in 2018, increasing to 7.0%, while in all regions of Indonesia, the highest in 2018 was in the province of Bali 11%. In South Sumatra, the prevalence of schizophrenia is 7%. Schizophrenia therapy is divided into two, namely pharmacological and non-pharmacological therapy. Pharmacological therapy by administering antipsychotic drugs, while non-pharmacological therapy is carried out using psychosocial approaches and ECT (Electro Convulsive Therapy).

In principle, there are three stages of schizophrenia therapy phase: acute phase, stability phase, and maintenance phase (Ikawati, 2014). Acute phase therapy occurs during the first 7 days (Wells et al., 2015). Stability phase therapy Stability therapy is carried out for

6-8 weeks (Wells et al., 2015). Maintenance phase therapy Stability therapy is carried out for 6-8 weeks (Wells et al., 2015). Treatment of schizophrenia is by using antipsychotic drugs. Antipsychotic drugs are the main therapy that effectively treats schizophrenia. Antipsychotics are divided into two generations, namely the first generation (typical) and the second generation (artificial) (Lally and Maccabe, 2015).

Antipsychotic drugs have significant side effects that make patients often not comply with treatment, especially if done in the long term. The use of antipsychotic drugs causes side effects in the form of acute dystonia on day 5 (Owens CGD, 2014), akathisia side effects symptoms appear 30-70 days and last for 3-18 months if not given anticholinergics (Kane JM et al., 2009), side effects of tardive dyskinesia appear after 6 months of treatment (Owens CDG, 2014). This study aimed to determine the pattern of drug use and side effects of antipsychotic drugs using adverse drug reaction checker tools in schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020.

RESEARCH METHODS

This study is a descriptive study that is non-experimental (observational) with retrospective data collection from medical records of schizophrenia hospitalized patients with an overview of patterns of use and side effects of antipsychotic drugs using Adverse drug Reactions Checker Tools, namely Medscape, drug.com, and Lexicomp at Ernaldi Bahar Hospital Palembang.

The samples used in this study were all populations that met the inclusion criteria. Includes patients receiving antipsychotic therapy, patients with or without comorbidities diagnosed with schizophrenia, aged ≥ 17 years. Characteristics in schizophrenia patients are gender, age, diagnosis, education, and description of the pattern of use of antipsychotic drugs in schizophrenia patients that are most widely used, non-antipsychotic drugs that are most widely used, and side effects of antipsychotic drugs that occur using adverse drug reactions checker tools at Ernaldi Bahar Hospital Palembang in 2020.

RESULTS AND DISCUSSION

Result

The study results were carried out in March 2021 – not May 2021 by taking data at the medical record installation of Ernaldi Bahar Hospital Palembang. It can be seen as follows: The research that has been carried out obtained the following results:

1. Characteristics of the patient

The data in this study were schizophrenia patients with antipsychotic drug therapy at Ernaldi Bahar Hospital Palembang in 2020, grouped by gender, age, education, and diagnosis.

Table 1. Patient characteristics

Characteristics of the patient	Sum	Percentage %
Gender		
Man	122	76,25
Woman	38	23,75
2. Age		
17-30	78	48,75
31-40	51	31,875
41-50	21	13,125
51-60	6	3,75
≥60	4	2,5
3. Education		
TS	14	8,75
SD	49	30,625
SMP	35	21,875
SMA	56	35
Diploma	0	0
Bachelor	6	3,75
4. Diagnosis		
Paranoid schizophrenia	122	76,25
Depressive schizophrenia	2	1,25
Undetailed schizophrenia	15	9,375
Manic type schizophrenia	4	2,5
Other schizophrenia	12	7,5
Schizophrenia of mixed type	3	1,875
	2	1,25

Hebephrenic schizophrenia		
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(Source: medical record data of Ernaldi Bahar Hospital Palembang)

2. Use of a single antipsychotic drug in inpatient schizophrenia patients at Palembang's Ernaldi Bahar Hospital in 2020

Table 2. Use of a single antipsychotic drug
in Schizophrenic Patients

Drug name	Number of patients	Percentage (%)
Olanzapine	18	11,25
Clozapine	10	6,25
Risperidone	61	38,125
Haloperidol	5	3,125
Abilify (aripiprazole)	1	0,625
Quetiapine	1	0,625
Sum	96	60

(Source: medical record data of Ernaldi Bahar Hospital Palembang)

3. Use of combination antipsychotic drugs in inpatient schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020

Table 3. Use of Combination Antipsychotic Drugs in Schizophrenic Patients

Category Antipsychotics	Drug name	Number of patients	Percentage (%)
AGP-AGP	CPZ-HLP	8	5
AGK-AGK	OLZ-CLZ	3	1,875
	RSP -CLZ	12	7,5
	RSP-OLZ	7	4,375
	CLZ-QET	1	0,625
	CPZ-OLZ	1	0,625
AGP-AGK	HLP-OLZ	2	1,25
	HLP- CLZ	5	3,125
	CPZ-RSP	12	7,5
	RSP-HLP	4	2,5
	HLP-CPZ- RSP	1	0,625
	CPZ- CLZ- RSP	1	0,625
	HLP-RSP- CLZ	7	4,375
Sum		64	40

Description: AGP= First Generation Antipsychotics; AGK= Second Generation Antipsychotics; HLP= Haloperidol; CPZ= Chlorpromazine; OLZ= Olanzapine; CLZ= Clozapine; RSP= Risperidone; QET= Quetiapine; (Source: medical record data of Ernaldi Bahar Hospital Palembang)

4. Use of Non-Antipsychotic Drugs in Inpatient Schizophrenic Patients at Ernaldi Bahar Hospital Palembang in 2020

Table 4. Use of Non-Antipsychotic Drugs in Schizophrenic Patients

Drug name	Number of patients	Percentage (%)
Trihexyphenidyl	94	58,75
Depakote	4	2,5
Fluoxetine	4	2,5
Lorazepam (Merlopam)	42	31,25
Clobazam	1	0,625
Escitalopram	1	0,625
Diphenhydramine	1	0,625
Sum	155	96,875

(Source: medical record data of Ernaldi Bahar Hospital Palembang)

5. Side effects of antipsychotic drugs that occur due to the use of anti-cyclic drugs in inpatient schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020

Table 5. Side effects of antipsychotic drugs that occur due to the use of antibiotic drugs in schizophrenic patients

Drug Name/patient number	Side Effects	Number of patients	Percentage %
Risperidone (101, 102)	1. Extrapyramidal symptoms (parkinsonism) 2. Sedation	2	1,25
Clozapine (74)	1. Orthostatic hypotension 2. Extrapyramidal symptoms (parkinsonism)	1	0,625
Olanzapine- Risperidone (113)	1. Orthostatic hypotension 2. Extrapyramidal symptoms	1	0,625
Clozapine- Haloperidol-	1. Weight gain	1	0,625

Risperidone (142)			
Sum		5	3,125

(Source: medical record data of Ernaldi Bahar Hospital Palembang)

Discussion

Based on the results of research that has been conducted on inpatient schizophrenia patients at Ernaldi Bahar Hospital Palembang as follows:

1. Based on the characteristics of the patient

Schizophrenic patients at Palembang's Ernaldi Bahar Hospital in 2020 who received antipsychotic therapy. There were 122 male patients (76.35%) and 38 female patients (23.75%). The data showed that more male patients were diagnosed with schizophrenia than women. The differences that occur in gender in schizophrenic patients in the hospitalization of Ernaldi Bahar Hospital Palembang in 2020 because men are socially the main support in the family and have greater life pressure than women, which can trigger stress (Haryani et al., 2015).

Schizophrenic patients at Ernaldi Bahar Palembang Hospital are most prevalent at 17-30 years (48.75%). Usually schizophrenia often occurs in late adulthood. It rarely occurs before adolescence or after the age of 40 years because that age range is filled with many stress-triggering factors and has a large burden of responsibility called biological factors (Wells et al., 2015). Stress-provoking factors usually include problems with family and friends, overwork, and economic problems that can affect emotional development. Stress can cause an increase in the secretion of glutamate neurotransmitters in the limbic system, causing neurotransmitter imbalance and can trigger schizophrenia (Kaplan H.I et al., 2010).

Based on the last education of schizophrenia patients, inpatients at Ernaldi Bahar Hospital Palembang had the most recent high school education (35%). Many patients with the last high school education experience mental disorders. They cannot continue their education to a higher level with mental disorders because they have to undergo more intensive treatment. If forced to continue their education, then they cannot follow normally. They are judging from the type of schizophrenia most experienced by inpatients at Ernaldi Bahar Hospital Palembang, namely paranoid schizophrenia (76.25%). Paranoid schizophrenia is the most common schizophrenia, with symptoms such as prominent hallucinations and delusions. The onset may be subacute but also acute (Maramis Willi and Maramis Albert, 2009).

2. Based on drug usage patterns

The use of antipsychotic single-therapy drugs is more widely used when compared to combination drug therapy in inpatient schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020. The single most numerous drug administration is Risperidone. Risperidone is an antipsychotic II (atypical) drug. This drug is derived from benzisoxazole derivatives indicated for treating schizophrenia for both negative and positive symptoms (Jarut et al., 2015). The drug has a high affinity for serotonin receptors (5HT₂) and intermediate activity for dopamine receptors (D₂), α ₁ and α ₂ adrenergic. Treatment with Risperidone gives 60% better results against positive and negative symptoms than typical antipsychotics (Faddly, 2016).

The most common use of combination antipsychotic drugs is risperidone-clozapine and chlorpromazine-risperidone. Typical antipsychotics can improve the positive symptoms of schizophrenia but generally do not improve the negative symptoms. In contrast, atypical antipsychotics can improve the positive and negative symptoms of schizophrenia and more effectively treat resistant patients (Cherrie et al., 2016).

The most widely used non-antipsychotic drug use at Ernaldi Bahar Hospital Palembang in 2020 was trihexyphenidyl (58.75%). This drug is one of the drugs that is often used if side effects of extrapyramidal syndrome are obtained due to the use of antipsychotic drugs. Trihexyphenidyl is a side effect therapy of extrapyramidal symptoms induced by antipsychotics and central nervous system drugs, such as akathisia, dystonia, and parkinsonism (tremor, rigidity, akinesia) and extrapyramidal syndrome (Swayami, 2014).

3. Based on the side effects of administering antipsychotic drugs

Description of side effects of using antipsychotic drugs in inpatient schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020 using Medscape, drug.com, and lexicon. Of the 160 patients used, only 5 patients' medical records listed side effects from the use of antipsychotic drugs. The use of Risperidone causes side effects of extrapyramidal symptoms and sedation. The use of clozapine causes side effects of extrapyramidal symptoms and orthostatic hypotension. The use of olanzapine-risperidone causes side effects of extrapyramidal symptoms and orthostatic hypotension. The use of clozapine-risperidone-haloperidol causes side effects of weight gain. Of the side effects, adverse drug reactions checker tools are also used.

CONCLUSION

Based on the results of research that has been conducted, it can be concluded that 1) The description of drug use, namely the use of antipsychotic drugs that are most widely used in schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020 is the use of the single most widely used drug is Risperidone (38.13%). Clozapine-risperidone (7.5%) and chlorpromazine-risperidone (7.5%) are the most widely used combinations. The most widely used non-antipsychotic drug use was trihexyphenidyl (58.75%); 2) Side effects contained in medical records as many as 5 medical records (3.125%) of schizophrenia patients at Ernaldi Bahar Hospital Palembang in 2020 who were given antipsychotic therapy side effects caused by the potential emergence of extrapyramidal syndrome (parkinsonism), sedation, weight gain, orthostatic hypotension. Side effects in schizophrenic patients are also found in the Adverse Drug Reactions Checker Tools.

The researchers' suggestions are 1) Need to increase the role of pharmacists as responsible for therapy and monitoring the use of antipsychotics in people with schizophrenia; 2) Recording data in patient medical records by nurses and doctors and pharmacists should be more complete and clear so that it is easy to see the treatment history; 3) In this study, there are limitations due to the COVID-19 pandemic, so it is recommended for future research to research prospective side effects of antipsychotic drugs.

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