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Use of Antipsychotic in Dementia Patients: A Desriptive Study

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ABSTRACT

Introduction. Dementia is a chronic progressive syndrome in which there is a decrease in the function of cognitive abilities including memory impairment, thinking ability, orientation, understanding, calculation, language, and assessment but without impaired consciousness. Apart from cognitive impairment, dementia is often accompanied by psychological symptoms and behavioural symptoms so that antipsychotic therapy is needed to overcome this. This study aims to identify the description of the use of antipsychotics in patients with dementia at Dr Mohammad Hoesin Palembang in the period 1 January 2014-31 December 2018. **Methods**. This research was a descriptive study using secondary data in the form of medical records of dementia patients receiving antipsychotic therapy at Dr Mohammad Hoesin General Hospital, Palembang. Samples were taken using a total sampling method. **Results.** There were 29 dementia patients (38.67%) receiving antipsychotic therapy. Most of the dementia patients who received antipsychotic therapy were in the late elderly age (27.59%) and were female (55.17%). The most commonly administered antipsychotic drug is haloperidol from the dopamine receptor antagonist (60%) with the most frequent dose of 0.5 mg (34.48%). Risperidone from the serotonin-dopamine antagonist class is the second most frequently prescribed antipsychotic drug (34.28%) at a dose of 1 mg (17.28%). The mean of haloperidol was 425 days, and risperidone was 295.5 days. **Conclusion.** Although in theory, psychological and behavioural symptoms are often found in dementia cases, not all dementia patients in RSUP Dr Mohammad Hoesin Palembang received antipsychotic therapy. People living with dementia who receive antipsychotic treatment get various types of drugs, dosages, and frequencies.

1. Introduction

Dementia is a syndrome in which there is a decrease in the superior cortical function of multiple without accompanied by disturbances of consciousness and is chronic-progressive. The noble cortical functions that are disturbed include the ability to remember, the ability to think, orientation, understanding, arithmetic, learning capabilities, language, as well as grades. The WHO data shows that the world's population suffering from dementia is as many as 50 million people.[1] Each year there are about 10 million new cases where the number is predicted to double in 2030 and increase

threefold in 2050.[1] In terms of the type of dementia, more than half of sufferers have Alzheimer's type dementia. The incidence of dementia will increase with age. The incidence of dementia type Alzheimer's in both men and women shows different numbers in each age range. At the age of 65, the incidence rates were 0.6% and 0.8%, increasing to 11% and 14% at the age of 85 years, and continued to increase until they reached the highest incidence rates of 36% and 41% when the patient turned 95 years old. Of the total patients, most (40-60%) were diagnosed with moderate and severe dementia.[2]

Psychological symptoms and behavioural symptoms often accompany dementia. Psychological symptoms include delusions, hallucinations, misidentification, depression, and anxiety disorders. Behavioural symptoms include wandering, agitation, physical aggression, restlessness, sexual disinhibition, screaming, crying, apathy, repeated questions and stalking.[3] Psychological symptoms and behavioural symptoms can affect the quality of life, increase treatment costs, and increase the burden on the caregiver of the patient. Therefore, it is necessary to provide pharmacological therapy, one of which is antipsychotics.[3,4] In the elderly population, the highest rate of antipsychotics prescription is to treat psychiatric symptoms in dementia patients.

Antipsychotics have the effect of reducing psychological and behavioural symptoms, but their use can also increase the risk of death. A study has attempted to look at the use of antipsychotics in at-risk populations such as dementia.[5] It was found that the use of antipsychotics in dementia patients was still conflicting. The use of antipsychotics in dementia patients has been shown to be able to overcome psychological and behavioural symptoms, although there are many side effects that can arise from using this drug. However, until now, there is no better or safer alternative to treat psychotic and behavioural disorders in dementia patients. This study aims to identify the use of antipsychotics in people living with dementia at RSUP Dr Mohammad Hoesin Palembang.

2. Methods

This type of research is a descriptive observational study. The study population was all patients diagnosed with and having clinical symptoms of dementia at Dr Mohammad Hoesin Palembang in the period 1 January 2014-31 December 2018.

The research data were processed by univariate frequency analysis based on research variables on secondary data obtained from tracing patient medical records. The study traced medical record included the type of dementia suffered, the patient's age, the gender of the patient, the type of antipsychotic drug used, along with the dose and duration of antipsychotic drugs. All dementia patients with comorbid psychotic disorders such as schizophrenia, acute psychotics, and mood disorders with psychotic symptoms were not included in the study sample.

3. Results

The research data was collected in some places, namely the Neurology Outpatient Unit, the Psychiatry Outpatient Unit at general hospital Dr Mohammad Hoesin Palembang. Data collection was carried out by observing and recording patient medical records that met the inclusion criteria and were not included in the exclusion criteria. The research subjects were obtained through a total sampling method in which all dementia sufferers who were treated at general hospital Dr Mohammad Hoesin Palembang from January 2014-December 2018 who received antipsychotic therapy and according to the inclusion criteria was sampled. From the results of tracing medical records in the three places above, 29

dementia patients were given antipsychotic drugs and met the inclusion criteria.

The majority of people with dementia who receive antipsychotic therapy at RSUP Dr Mohammad Hoesin Palembang Period 01 January 2014-31 December 2018 falls in the age range 56-65 years (27.59%) and over 65 years (24.15%). According to the Ministry of Health RI in 2009, the majority of patients fall into the late elderly and elderly categories. A total of 16 patients (55.17%) were female, while the rest were male (44.83%). Table 1 below presents data on demographic characteristics in the form of age distribution and sex of dementia patients receiving antipsychotic therapy at Dr Mohammad Hoesin Palembang Period 01 January 2014-31 December 2018. Then based on clinical findings, Vascular Dementia is the most common type of dementia. Table 2 below shows the types of dementia in dementia patients receiving antipsychotic therapy at Dr Mohammad Hoesin Palembang for the period 01 January 2014-31 December 2018.

A total of 29 patients received antipsychotic therapy (38.67%) of a total of 75 patients diagnosed with dementia at Dr Mohammad Hoesin Palembang in the period 01 January-31 December 2018. The antipsychotic drugs that are commonly given to dementia patients at the general hospital Dr Mohammad Hoesin Palembang in this research was a DRA class of antipsychotic medications, namely haloperidol (n = 21; 60%) followed by an SDA class of antipsychotic drugs, namely risperidone (n = 12; 34.28%). Furthermore, Aripripazol and Clozapine were given to one patient each (2.86%). Table 3 below shows the distribution of the types of antipsychotics given to people living with dementia at the general hospital Dr Mohammad Hoesin Palembang.

Haloperidol 0.5 mg (34.48%) from the DRA group and Risperidone 1 mg (17.24%) from the SDA group were the most frequently administered doses of antipsychotic drugs as shown in table 4.From the calculation results, the average dose of risperidone given to dementia patients is one time. The administration is 1.46 mg. Meanwhile, the average dose of haloperidol given in one administration is 1.38 mg. The minimum value, maximum value, median and standard deviation of Risperidone and Haloperidol can be seen in table 5.

The minimum duration of giving Risperidone is five days with a maximum period of 730 days and a mean of 295.5 days as can be seen in Table 6 below. The minimum duration of Haloperidol administration is seven days with a maximum length of 1105 days and a mean of 425 days. Meanwhile, clozapine and aripiprazole were given to one patient, respectively, for 12 months 11 days and two years and ten months.

Table 1. Demographic Characteristics of Dementia Patients Receiving Antipsychotic Therapy (n = 29)

Demographic Characteristic	N	%
Age		
Early adulthood (26-35 years old)	4	6.89
Late adulthood (36-45 years old)	6	20.69
Early Senilescent (46-55 years old)	4	13.79
Late Elderly (56-65 years old)	8	27.59
Elderly (>65 years old)	7	24.15
Gender		
Male	13	44.83
Female	16	55.17
Total	**29**	**100**

Table 2. Distribution of dementia types of patients receiving antipsychotic therapy at general hospital Dr. Mohammad Hoesin Palembang (n = 29)

Dementia Types	N	%
Vascular dementia	4	13.79
Mixed dementia	1	3.45
Alzheimer dementia	3	10.34
Senile dementia	2	3.45
Lewy-bodies dementia	1	3.45
Unclassified dementia	18	65.52
Total	**29**	**100**

Table 3. Distribution of antipsychotics types given to dementia patients at the general hospital Dr Mohammad Hoesin

Antipsychotic types	n*	%
Serotonin-Dopamine Antagonist (SDA)		
Risperidone	12	34.28
Aripiprazole	1	2.86
Clozapine	1	2.86
Dopamine Receptor Antagonist (DRA)		
Haloperidol	21	60

* The total number of samples in this table is more than 29 because there were some patients who received more than one antipsychotic drug and had switched antipsychotic drugs during therapy.

Table 4. Distribution of dementia patients receiving antipsychotic therapy based on the dosage of antipsychotic usage at general hospital Dr Mohammad Hoesin

Antipsychotic dosage	n*	%
Serotonin-Dopamine Antagonist (SDA)		
Risperidone	12	38.9
0.5 mg	1	2.78
0.75 mg	2	5.55
1 mg	5	13.89
1.5 mg	1	2.78
2 mg	3	8.33
Aripripazole 5 mg	1	2.78
Clozapine 50 mg	1	2.78
Dopamine Receptor Antagonist (DRA)		
Haloperidol	22	61.1

0.5 mg	10	27.78
0.75 mg	1	2.78
1 mg	2	5.55
1.5 mg	7	19.44
2 mg	1	2.78
5 mg	1	2.78

* The total number of samples in this table is more than 29 because there were some patients who received more than one antipsychotic drug and had switched antipsychotic drugs during therapy.

Table 5. Minimum, maximum, median, mean and standard deviation (SD) values of antipsychotic drug doses in dementia patients receiving antipsychotic therapy at Dr. Mohammad Hoesin Palembang

	Mean	Median	SD	Min	Max
Risperidone dose (mg)	1.46	1	1.04	0.5	2
Haloperidol dose (mg)	1.38	1.5	1.10	0.5	5

Table 6. Minimum, maximum, median, mean and standard deviation (sd) value of duration of antipsychotic drug administration in dementia patients receiving antipsychotic therapy at Dr. Mohammad Hoesin Palembang

	Mean	Median	SD	Min	Max
Risperidone	295.5	281.5	203.08	5	730
Haloperidol	425	333	382	7	1105

4. Discussions

Although age is the most critical risk factor for dementia, it does not mean that dementia can only occur in the elderly.[1] The data on the prevalence and incidence of dementia in Indonesia, complete with findings on the demographic characteristics of the patient, is not known. Studies that examine dementia in Indonesia are still scarce, one of the studies that have been conducted is in Jogja where the incidence rate of dementia was found to be 20.1% in older people aged 60 years or over in Yogyakarta.[6] These findings are consistent with the results of this study where dementia patients at Dr Most of Mohammad Hoesin fall in the age range above 65 years or fall into the category of seniors (32%). Dementia is indeed common among the elderly, resulting in an increase in the incidence of dementia in the elderly population. [2]

Not only in the elderly, but dementia can also occur in a younger population, which is called Young-Onset Dementia (YOD). By definition, YOD is dementia that can occur in a person before the age of 65 years.[7] YOD can be caused by several conditions, one of which is early-onset neurodegenerative types such as fast-onset Alzheimer's. Causes of YOD that are often found in people with dementia who are under 35 years of age.[8] Some other essential

causes of YOD are inflammatory, infectious, toxic, and metabolic processes. Some YOD is also believed to be genetically inherited. [8]

In this study, it was found that the youngest age of dementia patients who received antipsychotic therapy was 27 years. Several population-based studies such as in the UK show that the prevalence of dementia with age onset is in the 30-65 years range reaching 54 per 100,000 which increases to 98 per 100,000 for people with dementia aged 45-65 years. Of 42 per 100,000 for persons 18-65 years of age.10 The studies identifying the incidence of YOD were minimal. However, a study conducted by Vieira in 2013 found an increase in the prevalence of YOD. In general, YOD prevalence ranges from 0-700 per 100,000 people in the 25-64 year age group, with the incidence increasing with age.[11]

In this study, the majority were male, although the frequency distribution between men and women with dementia was not too different. From the aspect of gender, studies have shown a higher tendency for women to suffer from dementia compared to men.[12,13] This trend is thought to be related to the longer average life expectancy of women than men where women have a greater tendency to survive until age over 90 years.[13] Another cause that is thought to play a role in women's susceptibility to dementia is the possible difference in susceptibility thresholds. Men are thought to have a low threshold for the pathology of dementia, although the exact mechanism is not known.[14] However, it is known that there are studies that show no specific trend toward female sex in dementia cases. A population-based study in the Netherlands by Ruitenberg, et al. with 7046 subjects aged 55 years and over gave no result of a gender predilection for dementia. Higher in men in all age ranges15 consistent with the findings of this study. Beam in 2018 also stated that the difference in the incidence of dementia in men and women tends to arise after 80 years old.[13] The incidence of dementia is often found to be higher in women than men in the age range over 80 years.

Dementia can be classified into several types, namely Alzheimer's, Vascular Dementia, Lewy-bodies dementia, and Frontotemporal Dementia.[1,16] Even so, the differences between each type of dementia are not very significant, causing mixed-type dementia also to be universal. Of the several types of dementia, Alzheimer's is the most common type of dementia, accounting for 60-70% of all cases of dementia.[1] The next most common type of dementia is vascular dementia, although the incidence rate worldwide is not specified. [18]

This is in line with the findings of the most types of dementia at Dr Mohammad Hoesin general hospital for the period January 1st, 2014 to December 31st, 2018 was vascular dementia (22.67%). The increase in the incidence of Vascular Dementia is generally thought to be associated with an increase in the incidence of risk factors such as increased incidence of obesity, sedentary lifestyle, diabetes mellitus, hypertension, dyslipidemia, and metabolic syndrome.

The incidence of dementia is often accompanied by psychological and behavioural symptoms that require medication; one of them is antipsychotics.[3,4,19] From a systematic review of sixteen meta-analysis studies conducted by Tampi et al. in 201620 it shows that the use of antipsychotics for overcoming the symptoms of psychosis, aggression, and agitation in patients with dementia showing moderate efficacy. This is in line with the findings of this study where agitation and aggression are common findings in the majority of dementia patients at Dr Mohammad Hoesin Palembang, which resulted in the decision to give antipsychotics.

Prescription of antipsychotics in dementia patients varies between 20% -50%.[21,22] This fact is in line with the incidence of antipsychotic use

in dementia patients at RSUP Dr Mohammad Hoesin Palembang, which reached 38.67%. This is because the use of antipsychotics in cases of dementia is often limited due to the consideration of possible side effects.[20] The use of antipsychotics for a long time is also associated with an increased risk of mortality.[20]

Both DRA and SDA can be used to reduce psychotic symptoms in dementia patients. Initially, DRA was the most common antipsychotic administered to dementia patients with psychotic symptoms. However, because DRA exhibits extrapyramidal side effects at effective doses and has a high risk of accelerating cognitive decline in dementia patients, DRA has mostly been replaced by SDA.[2] Some patients undergo an antipsychotic drug change during treatment. For example, those who initially received the DRA class of antipsychotic drugs haloperidol were replaced with SDA antipsychotic drugs, namely risperidone. This is in line with recent theory and practice where most of the use of DRA has been replaced by a new type of antipsychotic, namely, SDA.[2] Based on The American Psychiatric Association (APA) guideline, the use of haloperidol is not recommended as a first-line drug.[23] Even so, the use of haloperidol in certain conditions such as delirium is still allowed given the presence of injection preparations that can be given both intravenously and intramuscularly.[23]

For the SDA group, the most widely administered antipsychotic drug is risperidone. SDA is used in the management of dementia patients because SDA has a lower risk of extrapyramidal side effects, and has a broader spectrum of action than DRA. In contrast to DRA, SDA has a significant effect on dopamine and serotonin and has more complex pharmacology.[2] However, from a study conducted by Ballard and Waite, the use of risperidone and olanzapine is known to increase aggressiveness when compared to placebo. The use of risperidone is also known to improve psychotic symptoms in people with dementia.[24]

From a total of 29 patients, one patient received combination antipsychotic therapy, namely the Serotonin-Dopamine Antagonist (SDA) group in the form of clozapine with the Dopamine Receptor Antagonist (DRA) class of antipsychotic drugs, namely haloperidol. The combination of using Clozapine and Haloperidol is not recommended because based on theory, hyperglycemia can occur and increase the risk of developing diabetes mellitus in patients due to the use of clozapine.[25] The use of clozapine can also cause other side effects in the form of potentially fatal agranulocytosis.[26]

Haloperidol and Risperidone preparations are available in the form of injection as well as orally with various doses. The dose of antipsychotic use in dementia patients who are receiving antipsychotic therapy depends on the type of antipsychotic used and the decision of the competent doctor treating the patient. The most frequently used antipsychotic drugs and also the most varied dosages for patients were Risperidone for the SDA group and Haloperidol for the DRA group.

The APA states that treatment of BPSD symptoms in dementia patients should be started at a low dose and then titrated to the minimum tolerable dose.[23] The recommended starting dose for elderly dementia patients is one-third to one-half of the initial dose used to treat psychosis in younger individuals.[23] There are several factors to consider including drug interactions, the half-life of the drugs, and kidney and hepatic function.

From the study of Suh et al. in 2006 which was used as a reference for APA in making recommendations comparing the use of risperidone and haloperidol, it was found that the average dose of risperidone was 0.80 mg/day with a dosage range of 0.5 mg-1.5 mg/day providing better clinical improvement

than haloperidol with a range of 0.5-1.5 mg / day with an average dose of 0.83 mg / day.[23] This result is in line with the range of doses of risperidone and haloperidol given at RSUP Dr Mohammad Hoesin Palembang. The dose range of risperidone was 0.5 mg-2 mg with the most administered dose of 1 mg/day (17.24%) and 2 mg/day (10.34%) while the dose range of haloperidol was 0.5 mg-5 mg/day with the most administered dose. is 0.5 mg. The mean doses of Risperidone and Haloperidol are given in this study were 1.46 and 1.38 mg.

In 2005, the Food and Drug Administration in the United States issued a warning against the use of antipsychotics in dementia patients. It is because the use of this drug can increase the risk of death in patients. So that the decision to administer the dose and its duration should be as low and short as possible

Based on the latest recommendations issued by the APA, there are six recommendations regarding the dosage, duration, and monitoring of antipsychotic therapy in dementia patients. Statement 10 of the APA is that if a patient with dementia does not have a clinically significant response after a four-week trial of antipsychotic medication, then treatment should be lowered in terms of dose and discontinued.

Another recommendation is that efforts to reduce the dose and stop treatment in dementia patients who show a reasonably good response to treatment using antipsychotic drugs after four months of starting therapy (Reuss et al., 2016). This action should be done unless symptoms persist and or recurrences are found. In this study, the average dementia patients were given antipsychotic treatment for haloperidol for 425 days and 295.[5] days for risperidone. These may be due to the dementia patients at Dr Mohammad Hoesin Palembang still shows symptoms of BPSD even though he has received antipsychotic treatment for four months. In conclusion, the average duration of administration of antipsychotics in dementia patients exceeds the duration recommended by the APA.

5. Conclusion

Although in theory, psychological and behavioural symptoms are often found in dementia cases, not all dementia patients in Dr Mohammad Hoesin Palembang received antipsychotic therapy. Dementia patients who receive antipsychotic therapy receive various types of drugs, dosages, and frequencies.

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