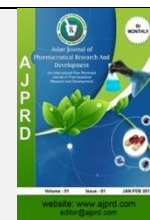


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Research Article

## The Evaluation of Drug Related Problems to Patient of Bronchial Asthma Which Has Related With The Duration of Taking Care and Breath Frequency at RSUP Dr M Djamil Padang

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### ABSTRACT

**Objectives:** Asthma patients often receive more than one drug and will increase the risk of the occurrence of effect or something unwanted. To deal with Drug-Related Problems (DRPs) in the hospital, the role of pharmacist is needed that is strongly committed and capable of dealing with DRPs is required. This study aims to identify and analyze the DRPs and the relations between DRP and length of stay and also the patient's breathing frequency at RSUP Dr M. Djamil Padang.

**Data Sources Study Selection:** This research is a descriptive research conducted retrospectively. Samples were obtained from patients medical record data during the 2017.

**Summary of contents of the article:** In this study 10 categories of DRPs were analyzed. DRP was occurred 19% untreated indications and there was no significant relations between DRP and length of stay and there was no significant relations between DRP and the patient's breathing frequency.

**Conclusion:** The result of statistical test using Spearman's rho P-value 0.482, there is no significant relation between Drug-Related Problems and length of stay that has the value  $P > 0.05$  is the relations between Drug-Related Problems and the breathing of frequency.

**Keywords:** Bronchial Asthma ; Drug Related Problems ; The duration of Taking Care ; Breath Frequency

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### INTRODUCTION

The increasing number of drugs in circulation and the limited knowledge of health workers about the profile of a drug has led to an increase in DRP. To overcome DRP in the hospital, it is necessary to have a pharmacist who is strongly committed and capable of dealing with DRP. Currently, the role of pharmacists in hospitals in handling DRP has not been seen, especially in Indonesia, differences in understanding have resulted in varied coverage of services as well as uncertainty in more technical service coverage<sup>1</sup>.

Asthma is one of the main health problems in both developed and developing countries. According to data from the 2017 Global Initiative for Asthma (GINA) report, it is stated that the incidence of asthma from various

countries is 1-18% and it is estimated that 300 million people in the world suffer from asthma<sup>2</sup>. The prevalence of asthma according to the World Health Organization (WHO) in 2016 estimated that 235 million people in the world currently suffer from asthma and are under-diagnosed with a mortality rate of more than 80% in developing countries<sup>3</sup>.

The incidence of asthma in Indonesia based on data from basic health research (Riskesdas) in 2013 states that the incidence of asthma in West Sumatra is 2.7%<sup>4</sup>. Data from the Padang City Health Office (DKK) is that asthma is included in the list of 10 most common causes of death in Padang City in 2013 with a death rate of 11 women and 5 men, it appears that the incidence of asthma in Indonesia, especially in West Sumatra is still high. and it is necessary

to get significant treatment so that people with asthma can have a good quality of life<sup>5</sup>.

According to the Ministry of Health of the Republic of Indonesia, asthma is one of the top 10 causes of disease and death in Indonesia. The highest incidence rate of asthma from the results of the Riskesdas survey in 2013 reached 4.5% with the largest number of sufferers being women, namely 4.6% and men as much as 4.4%. It is estimated that it will increase by 20% in the next 10 years, if not well controlled<sup>6</sup>.

The administration of drugs with excessive amounts or more than four types of drugs is known as polypharmacy. Polypharmacy is the use of several drugs simultaneously, which can be interpreted as the number of drugs that are used too much or the use of various dosage forms of drugs that are not useful or the frequency of drug administration that is more frequent than the usual administration. Polypharmacy will increase the risk of unwanted drug effects or reactions<sup>7</sup>. Clinical pharmacy services in hospitals are intended to guarantee rational treatment to patients. The use of drugs is said to be rational if the drugs used are under clinical needs in doses that meet individual needs for an adequate period at the lowest price for them and their community<sup>8</sup>.

Based on the description above, the researcher is interested in researching DRP and its relationship with the length of stay and respiratory rate. This research is expected to be known by all medical and health personnel so that the incidence of DRP can be minimized. Therefore, researchers will conduct a Drug-Related Problems study in bronchial asthma patients. This research was conducted with a descriptive analysis carried out retrospectively from January 2017 to December 2017 on all bronchial asthma patients in the pulmonary inpatient ward at RSUP DR M. Djamil Padang. Bronchial asthma patient data were obtained from medical record records in lung disease. The shortage of medical records is complemented by looking at nurses' records and seeing medicine records at the pharmacy depot.

## METHODS

### Types and Sources of Research Data

The research was carried out at Dr. M. Djamil Padang in January 2017-December 2017. The research was conducted with a retrospective descriptive analysis. Data sources include medical records, nurse records. Data were collected by recording medical records, nurse records, and drug records at the pharmacy depot.

### Research procedure

The sample studied was a population of bronchial asthma sufferers with inclusion criteria, namely bronchial asthma sufferers aged 20-60 years. Patient exclusion criteria were patients with incomplete medical records and who died and were not willing to be treated.

### Data retrieval

Data were collected through patient medical records with qualitative data, including 1) completeness of patient data such as age, gender, current medical history, past medical

history, family history of the disease, history of allergies, 2) therapeutic action against bronchial asthma and disease. companions, 3) Diagnosis of the disease, 4) physical examination, 5) supporting examinations, and others. Quantitative data in this study is to calculate the percentage of patients undergoing bronchial asthma therapy, namely the percentage of patients based on gender, the age range of patients, percentage of the number of types of drugs used, length of stay, frequency of breath, and disease diagnosis. The data taken is collected in a data collection sheet that has been prepared. The shortage of medical records is complemented by seeing records of nurses and medical records in the pulmonary pharmacy depot.

### Observed Parameters and Data Analysis

The parameters observed in this study were: 1) data on patient characteristics including gender, age, length of stay, comorbidities in the form of numbers and percentages, 2) data on the use of patient therapeutic drugs were collected and a list of drugs frequently prescribed by doctors for asthma patients was made. bronchial numbers and percentages, 3) The data obtained were analysed according to the DRPs category (drug without indication, an indication not being treated, patient inappropriate medication, inaccurate drug selection, excessive drug dosage, insufficient drug dose, drug side effect reactions, drug interactions, failure to obtain drugs and patient non-compliance). Data for DRPs categories are added and the percentage is calculated, where each DRPs category is calculated by dividing the number of incidents of each DRPs category by the total number of DRPs incidents then multiplying by one hundred percent. The incidence of DRPs that occurs in patients is presented in tabular form that details the problems that occur.

Statistical test analysis to see Drug-Related Problems. The relationship between drug-related problems and length of stay was analysed using the Spearman's rho test with a significance level of 0.05. Meanwhile, the relationship between DRP and respiratory frequency was analyzed using the Spearman's rho test with a significance level of 0.05. All analyses were performed with SPSS for windows version 19.0.

## DISCUSSION

The results showed that there were 21 patients with bronchial asthma who met the inclusion criteria. Total male gender (9 patients; 43%) and female gender (12 patients; 57%). The female gender is more than the number of bronchial asthma patients with the male gender. This is under Basic Health Research (2018), where the highest incidence of sex in patients with asthma is women (57%)<sup>9</sup>. This is following the theory which states that women experience asthma more often after puberty and its prevalence decreases after menopause. The role of sex hormones, namely estrogen, is often thought to be the cause of the high prevalence of asthma in women<sup>10</sup>. It is also appropriate in Dipiro that women suffer from bronchial asthma more frequently than men<sup>11</sup>.

The age range of patients with bronchial asthma in this study was 46-55 with 8 patients (38%). The results of the study were 2 patients aged 17 - 25 years (9.5%), and 26

years - 35 years of age, 2 patients (9.5%), 36 years - 45 years were 3 patients (14.2%). ), 46 years - 55 years as many as 8 patients (38%), 56 years - 60 years as many as 6 patients (28.5%).length of stay of patients with bronchial asthma in the lung ward at the hospital. Dr. M. Djamil Padang had the highest number of treatment days of 6-10 days as many as 13 patients (61.9%), the second most on treatment days under 5 days were 6 patients (28.5%), and the least on treatment days was 11-15 days. Based on this, it can be interpreted that the average patient with bronchial asthma who is treated is about 1 week (7 days). Rodrigo's study showed that patients with severe asthma had a longer length of stay than moderate asthma<sup>12</sup>.

Based on the research data obtained, it is known that the percentage of patients based on comorbidities diagnosed by doctors is the most common in patients with bronchial asthma in Dr. M. Djamil Padang was Community-Acquired Pneumonia in 9 patients (42.8%), followed by dyspepsia as many as 8 patients (38%), COPD as many as 4 patients (19%), hypokalaemia as many as 3 patients (14.2%). Most of the drugs used by doctors in patients with bronchial asthma are bronchodilators ( $\beta_2$  adrenergic agonists, xanthin group, anticholinergics) and anti-inflammatory and supporting drugs such as mucolytics. Most drug use is the use of aminophylline and methylprednisolone. Aminophylline is one of the methylxanthine groups that is often used. The most widely used  $\beta_2$  adrenergic agonist is salbutamol.  $\beta_2$  adrenergic agonists can increase recurrence in asthma patients, so it is recommended to be combined with other anti-asthma drugs. Asthma treatment is not only to treat symptoms such as shortness of breath, chest tightness, coughing but also to treat inflammation in this case corticosteroids are effective drugs to treat inflammation<sup>2</sup>.

Supporting drugs that are often used therapy to treat symptoms or accompanying diseases such as anti-bacterial drugs, namely ceftriaxone (61.9%), cefixime (33.3%), levofloxacin (28.5%), and ciprofloxacin (1%). 3rd generation cephalosporin antibacterial namely ceftriaxone and cefixime have an important role in the therapy of infectious diseases. It is bactericidal against bacteria and works by inhibiting the synthesis of mucopeptides in the

cell wall so that the structure is damaged and intracellular osmotic pressure becomes unstable. Levofloxacin including quinolone class antibacterial works by inhibiting DNA-gyrase in sensitive organisms, inhibiting relaxation of DNA supercooled, and inducing DNA double-strand damage<sup>13</sup>. Antibiotics are given to patients who come with a cough with coloured sputum. Bacterial infections that often accompany asthma attacks are gram-positive bacteria unless there is suspicion of gram-negative bacterial infection (chronic respiratory disease/disorders) and even anaerobes such as chronic obstructive pulmonary disease (COPD). Antibiotics of choice according to the causative bacteria or appropriate empirical treatment for gram-positive are the macrolides, quinolones, and amoxicillin groups with clavulanic acid<sup>14</sup>.

In this study, the types of comorbidities drugs in RSUP. Dr. M. Djamil Padang, the next most commonly H2 antagonist, anti-ulcers, and proton pump groups. Treatment given to treat patient gastritis is the injection of Ranitidine 50 mg twice a day, sucralfate and Lansoprazole 30 mg once a day. Ranitidine works to reduce gastric acid secretion by inhibiting histamine at H2 receptors. The dose of ranitidine for gastritis that is given iv is 50 mg every 6-8 hours, a maximum of 400 mg a day. Sucralfate works to bind with positively charged protein molecules in the mucosa of the gastrointestinal tract, forming an insoluble and stable complex, and forming a barrier that adheres to and protects the ulcer site. Sucralfate is taken by mouth with water on an empty stomach, 1 hour before or 2 hours after eating. Lansoprazole works by suppressing gastric acid secretion by inhibiting the proton pump in gastric parietal cells. The dose of lansoprazole for gastritis is 30 mg once daily.

### 1. Drug Related Problems (DRPs)

Based on the data obtained, the Drug-Related Problems that occur are indications that are not treated as much as 19%, drugs without indication 0%, the patient is not correct drugs 0%, inaccurate drug selection 0%, excessive drug dosage 0%, fewer drug doses 0%, drug adverse reactions 0%, drug interactions 0%, failure to obtain drugs 0% and patient non-compliance. (table 1 / table 2)

**Table: 1.** Types of Drug Related Problems in Bronchial Asthma Patients

No	Drug Related Problems	Number of Events	Percentage (%) (n = 21)
1	Medication without indication	0	0
2	Untreated indication	4	19
3	The patient's inappropriate medication	0	0
4	Inaccurate drug selection	0	0
5	Excessive dose of the drug	0	0
6	Less drug dose	0	0
7	Drug side effect reactions	0	0
8	drug interactions	0	0
9	Failure to obtain medication	0	0
10	Patient non-compliance	0	0

**Table: 2** Types and number of Drug Related Problems, length of stay and frequency of breaths in Bronchial Asthma Patients

Patient	DRPs description	Number of DRPs occurrences	Length of Hospitalization (Days)	Breath Rate (Minutes (x / i))
P1	-	0	5	28
P2	-	0	12	28
P3	-	0	8	25
P4	-	0	6	25
P5	-	0	8	25
P6	-	0	12	24
P7	Untreated indication	1	6	24
P8	-	0	9	26
P9	-	0	10	28
P10	-	0	6	26
P11	-	0	5	26
P12	Untreated indication	1	8	24
P13	-	0	7	22
P14	-	0	8	24
P15	-	0	5	22
P16	Untreated indication	1	7	26
P17	-	0	5	24
P18	-	0	8	24
P19	Untreated indication	1	4	22
P20	-	0	7	24
P21	-	0	3	22

## 2. Relationship between Drug Related Problems (DRPs) with the length of stay and frequency of breath

Through the analysis that has been done, it is found that there is no significant relationship between drug-related problems and patient length of stay and there is no significant relationship between drug-related problems and breathing frequency. Based on the results of statistical tests using the Spearman's rho p-value of 0.482, there was no significant relationship between Drug-Related Problems and length of stay where  $P > 0.05$ . The relationship between drug-related problems and breathing frequency. Based on

the results of statistical tests using the Spearman's rho p-value of 0.421, there was no significant relationship between drug-related problems and breathing frequency where  $P > 0.05$ . This is different from the research conducted by Kadek, 2016 which shows that there is a relationship between the number of drug-related problems and the length of stay of patients in the hospital-based on the results of statistical tests using Spearman's rho p-value 0.108. The difference in the results obtained in this study can be caused by the limited number of samples studied, has health insurance, and retrospective research. (table 3)

**Table: 3.** Correlation Number of Drug Related Problems, length of stay and frequency of breath in patients with bronchial asthma

Analysis Results parameter	P value	Conclusion
Drug Related Problems Length of stay	0,482	So, it can be concluded that there is no relationship between drug related problems and length of stay
Drug Related Problems Breath frequency	0,421	So, it can be concluded that there is no relationship between drug related problems and breath frequency

## CONCLUSIONS

From the results of the study, it can be concluded that drug-related problems in patients with bronchial asthma that occur are an indication that 19% are not treated. The relationship between drug-related problems and length of stay using the Spearman's rho correlation test shows that there is no relationship between the number of drug-related problems and the length of stay in the hospital (p-value 0.482) while the results of the analysis of drug-related

problems and the frequency of breath using the Spearman test 'rho' showed that there was no relationship between the

number of Drug-Related Problems occurring with the frequency of breaths of patients in the hospital (p-value 0.421). This is different from the research conducted by Kadek which shows that there is a relationship between the number of drug-related problems and the length of stay of patients in the hospital<sup>15</sup>. based on the results of statistical



tests using Spearman 'rho p-value 0.108. The difference in the results obtained in this study can be due to the limited number of samples studied, has health insurance, and retrospective research.

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