PROFILE OF DIAGNOSIS AND PROCEDURES OF ASTHMA PATIENTS HOSPITALIZED IN ROYAL PRIMA MEDAN HOSPITAL AT 2018

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Abstract: Asthma is a chronic inflammatory disease of the respiratory tract. The purpose of this study was to determine the description of the diagnosis and management of asthma inpatient at RSU Royal Prima Medan in 2018. This research was conducted using a case study design method, descriptive - retrospective, sample size 100 data of medical records of patients taken by purposive sampling, namely medical records the most complete data and analyzed with descriptive statistics. The results show that the youngest is 9 years old and the oldest is 85 years old, with 44 men and 56 women. The most common complaint is 74 shortness of breath and the most pharmacological management is beta2 agonist 100%. The conclusion was that the distribution of asthma was higher in women (56%) than in men (44%) and the most common complaint was shortness of breath (74%) and the most used combination treatment was Beta 2 + Corticosteroid + Ammonium Chloride Agonists. and Diphenhydramine + Paracetamol + Antibiotics (35%).

Keywords: *Asthma, Diagnosis and Management, Royal Prima Hospital Medan*

INTRODUCTION

Asthma is a chronic inflammatory disease of the respiratory tract that is often associated with hyperresponsiveness. In this case, various inflammatory cells play a role, for example mast cells, eosinophils, neutrophils and lymphocytes. If this hyperresponsive reaction is exposed to certain stimulations it will cause symptoms such as shortness of breath (dyspnoea), wheezing and coughing due to reversible airway obstruction.[1,2] Symptoms that appear are usually triggered by several factors for example, exercise, allergen exposure, weather changes or respiratory tract infections.[3]

Asthma is a heterogeneous disease with the interaction of various genetic and environmental factors. There are 2 factors that cause asthma: endogenous factors and environmental factors. Genetic predisposition, history of atopy, and airway hypersensitivity are included in endogenic asthma causes, while allergens in the home, allergens outside the home, exposure to the workplace, passive smoking and respiratory infections are included in environmental factors.[4]

Based on Riskesdas 2007, there was an increase in the prevalence of asthma with age. In patients aged <1 year the prevalence of 1.1% and age 75 years above the prevalence of 12.4%. Based on Riskesdas 2013, patients aged 25-34 years had the highest prevalence of 5.7% and those aged <1 year had the lowest prevalence of 1.5%. According to the 2017 National Center for Health Statistics (NCHS), asthma is more common in women with a percentage of 9.3% compared to men 6.4% .[5]

In 2013 WHO (World Health Organization) estimated that between 100 million and 150 million people of worldwide suffer from asthma and this number continues to increase. Around 180,000 people of worldwide annually die from this condition. About 8% of the Swiss population suffer from asthma, with an increase from 4% from 25-30 years ago.[6] In Germany there are an estimated 4 million asthma sufferers and similarly in Western Europe the overall rate of asthma has increased manifold in 10 year according to UCB (Union Chimique Belge) Institute of Allergy in Belgium 2008.[7] The number of asthmatics in the United States jumped more than 60% from the early 1980s and deaths have doubled to 5000 per year.[6]

Based on GINA (Global Initiative for Asthma) in Southeast Asia in 2010 the prevalence of asthma found 17.5 million people out of a total population of 529.3 million people or a prevalence rate of around 3.3%.[3] In 2013 there were 18 provinces in Indonesia that had an asthma prevalence exceeding national figures and included in the top 5 provinces were South Kalimantan, Central Sulawesi, East Nusa Tenggara, Yogyakarta and South Sulawesi. Meanwhile, the regions of North Sumatra, Jambi, Riau, Bengkulu and Lampung are areas that have an asthma prevalence below the national rate. When compared to 2007 and 2013, there was an increase in asthma prevalence nationally by 1% .[5,8] For the prevalence of asthma in North Sumatra in 2007 by 3% (range 0.3 - 6.4%), the highest was in Mandailing Natal.[9]

Until now, the procedures for diagnosis, as well as the management of Asthma patients have been known, but because of the progress in medical science and technology that is developing rapidly, then the procedure may change

according to changes in place and time. In connection with that the question arises how the procedures for diagnosis and treatment carried out in patients with asthma in hospital at Royal Prima Hospital. Thus, it is necessary to examine the profile of the diagnosis and management of asthma sufferers who are hospitalized at Royal Prima Hospital Medan in 2018.

RESEARCH METHOD

The used research design was a retrospective case study design. The study was based on medical records related to the diagnosis and management of inpatient asthma patients in Royal Prima Hospital in 2018.

The study was conducted at Royal Prima Hospital Medan with the consideration that in this Hospital there was available patient data needed. The study began in April to October. The target population was inpatients with asthma and the affordable population was all the medical records of inpatient asthma patients at Royal Prima Hospital in 2018. Methods of data collection was

purposive sampling. Data analysis used descriptive statistical distribution of proportions and presented in the form of narration, and proportion distribution tables.

RESULTS AND DISCUSSION

The study was conducted to determine the description of the diagnosis and management of asthma inpatient at RSU Royal Prima Medan in 2018. The sample size was 100 samples using a case study design research method, descriptive - retrospective, taken by purposive sampling. Based on the results of the study found the youngest age is 9 years and the oldest age is 85 years with sex ratio = 44/56 x 100% = 78.5% with the number of women 56 people and the number of men as many as 44 people. Based on the most age groups at the age of 25-32 years (40%) with the proportion of men (6%) and the proportion of women (34%). The proportion distribution of asthma patients who are hospitalized at Royal Prima Hospital Medan in 2018 can be seen in table 1.

Table 1. Proportions Distribution of Asthma Patients by Age and Gender Period 2018

	Man		Woman		Amount	
Age (year)	F	%	F	%	F	%
9 -15	5	5	1	1	6	6
16 - 24	10	10	4	4	14	14
25 - 32	6	6	34	34	40	40
33 - 40	5	5	1	1	6	6
41 - 48	4	4	6	6	10	10
49 - 56	5	5	4	4	9	9
57 - 64	3	3	2	2	5	5
65 - 72	4	4	4	4	8	8
73 - 85	2	2	0	0	2	2
Total	44	44	56	56	100	100

Based on previous research, conducted by Ni Luh Putu Ekarini in his research the Analysis of the Factors Triggering an Asthma Attack with the results of the gender distribution of respondents dominated by

women as many as 77 people (65.3%) whose number is almost twice that of male respondents as many as 41 people (34.7%).[10]

The results of this study found that men suffer less asthma than women because the

airway and lung function in men is greater than the airway and function in women. Airway resistance is inversely 4 times higher when compared with the diameter of the airway so that resistance in the airways will easily increase if the airway diameter is small.[11]

The distribution of the proportion of asthma patients based on the main complaint obtained the most results are shortness of breath (74%) and followed by complaints of heaviness in the chest (26%). Same with research. conducted by Ni Luh Putu Ekarini, it was found that the distribution of respondents' complaints that was most difficult was breathing as many as 38 people (32.2%). This can be seen in table 2.

Table 2. Proportions Distribution of Asthma Patients Based on Major Complaints of the 2018 Period

Major Complaint (N = 100)	F	%
Shortness of breathing	74	74
Heaviness in the chest	26	26

Symptoms of shortness of breath come from the inflammatory response where allergens that bind to IgE will stick to mast cells which will then degranulate. The degranulation process will issue a preform mediator, among others; histamine, protease, and newly generated mediators such as PAF, leukotrin, and prostaglandins which then cause bronchial smooth muscle contraction, edema, mucous secretion and vasodilation.[12]

Distribution of the proportion of asthma patients based on additional complaints obtained by the combination of the most additional complaints is fever + cough + limp (46%), as can be seen in table 3.

Table 3. Proportions Distribution of Asthma Patients Based on Additional Complaints of the 2018 Period

Additional Complaints	F	%
Fever + cough	36	36
Fever + limp	18	18
Fever + cough + limp	46	46
Total	100	100

Each symptom can be interpreted, as can a fever. Fever is an increase in body temperature which can be marked by increasing the threshold point of heat regulation in the hypothalamus area. This process of increasing body temperature refers directly to the pyrogen cytokine that is produced in order to overcome various stimuli such as toxins in bacteria, inflammatory processes and so on.[13] Inflammation in this case includes viral infections such as Rinovirus, Respiratory syncytial virus and Coronavirus are the most common triggers in severe asthma because of increased production of type 1 interferon by asthmatic epithelial cells that cause more severe inflammatory responses.[4] Cough is a series consisting of cough receptors, afferent nerves, efferent nerves, cough centres, and effectors. Coughing is preceded by a maximum inspirational process and then the glottis closure will occur, and an intrathoracic increase will occur after which the glottis will open and cough expulsively, which is the point of expelling foreign objects in the respiratory tract.[14]

The proportion distribution of asthma patients based on physical examination which includes inspection; appear agitated + rapid breathing (94%), followed by palpation with normal results (100%), as well as percussion found normal results (100%) and auscultation; wheezing as much (71%). Distribution of proportions based on physical examination can be seen in table 4.

The proportion distribution of asthma patients based on the results of supporting examinations used is the examination of

eosinophil levels found that respondents who experienced an increase in eosinophil levels were (41%) and those who had normal eosinophil levels were 59%. In people with asthma, eosinophilia is found active. Eosinophils have an effector role and synthesize cytokines such as IL3, IL5, IL6, GM-CSF, TNF-alpha and lipid mediators. Cytokines that have a role in increasing maturity, extending eosinophil life and increasing activation are cytokines IL3, IL5 and GM-CSF. Eosinophils peroxidase (EPO), major basic protein (MBP) and eosinophil cationic protein (ECP) are eosinophils that have protein granules and these eosinophils are toxic eosinophils in the respiratory epithelium.[12]

Table 4. Proportion Distribution of Asthma Patients Based on Physical Examination Period 2018

Physical Examination	
Inspection: seem nervous + rapid breathing	94%
Palpation: normal	100%
Percution : normal	100%
Auscultation: wheezing	71%

Table 5. Proportion Distribution of Asthma Patients Based on Additional Examination Period 2018

Complete Clood Test (N = 100)	F	%
Increasing of Eusinophil level	79	79
Normal	21	21

Distribution of proportions based on medical management found Beta 2 Agonists (100%), followed by corticosteroids (58%), then Ammonium Chloride and Diphenidramine (82%), paracetamol (100%) and antibiotics (57%). This study is the same as the research conducted by Khoman, Paul Alwin regarding his research on the Profile of Asthma Patients in Asthma Poly in the Pulmonary Section of Haji Adam Malik General Hospital Medan, which said that the most medical management was beta 2 short working agonists (74%).[15] The most commonly used asthma treatment is a beta 2 agonist. Beta 2 agonists are an option in acute asthma because these drugs work with the effects of muscle relaxants, cleaning mucocillaries, reducing vascular permeability and modulating the release of inflammatory mediator cells such as mast cells and basophils. Beta 2 agonists have a rapid onset of drug action that is 5 minutes with a 6 hours duration of action. Side effects of beta 2 agonists are still minimal so they can still be tolerated. The most commonly used in EDs is salbutamol, as for other drugs such as metaproterenol, phenoterol and terbutaline.[12]

Corticosteroids are the most effective drugs in controlling asthma attacks. Corticosteroids can be used systemically or inhaled. However, the most commonly used in controlling asthma is inhaled corticosteroids. Side effects of using this drug are local and can be prevented by using spacers or mouth washing after using an inhaler.[12]

The proportion distribution of asthma patients based on the longest stay is 3 days with a presentation (73%) and the shortest stay of 7 days at 1%. The patient with the longest stay was a 50-year-old man. And patients with a length of stay of 1 day amounted to 4 cases. Age, gender, comorbidities and endurance are factors that contribute to the incidence of asthma. So that these factors indirectly affect the length of stay of asthma patients in the hospital. Research by Audrey M. I. Wahani in his research on the Characteristics of Asthma in

pediatric patients who are hospitalized in Prof. Hospital Kandow Malalayang, Manado stated that the length of stay for most asthma patients was 3 days.[16] The distribution result can be seen in table 6.

Tabel 6. The Proportion Distribution of Asthma Patients Based on The Length of Stay Periode 2018

Length of Stay (N = 100)	F	%
1 day	4	4
2 days	6	6
3 days	73	73
4 days	11	11
5 days	3	3
6 days	2	2
7 days	1	1

The condition when returning home is a condition or condition where the patient leaves the hospital, consisting of outpatient treatment, returning at his own request, and dead. The distribution of asthma patients based on the condition of returning home obtained the results at the Royal Prima Hospital in 2018 the most were outpatient (79%) and the least was death (4%), as seen in table 7. All asthma patients died because they had entered respiratory failure and had a history of severe asthma.

Tabel 7. The Proportion distribution of asthma patients based on the condition when returning home Periode 2018

Returning home condition (N = 100)	F	%
Outpatients treatment	79	79
Returning at his own request	15	15
Dead	4	4

CONCLUSSION

Based on the conducted research, it was concluded partly the majority of asthma sufferers are in the age range of 25-32 years, female sex (34%), and based on the most common complaints are shortness of breath (74%), additional complaints with the most combination of fever + cough + weakness (46%) and based on the results of the physical examination carried out found that the patient appeared agitated + rapid breathing on inspection (94%) and on auscultation there was an additional wheezing sound (71%). From the results of investigations supporting eosinophil levels, eosinophil levels were increased (41%) and (100%) and the most frequent treatment given was a combination of Beta 2 + Corticosteroid + Ammonium Chloride and Diphenidramine + Paracetamol + Antibiotic drugs (35%). From the results of investigations supporting eosinophil levels, eosinophil levels were increased (41%) and (100%) and the most frequent treatment given was a combination of Beta 2 + Corticosteroid + Ammonium Chloride and Diphenidramine + Paracetamol + Antibiotic drugs (35%). Based on the length of stay, the average asthma patient was treated for 3 days (73%) and the condition of returning home in asthma patients was outpatient treatment (79%).

Therefore, it is necessary to do further research to determine the factors associated with the cause of asthma for men aged 16-24 years and women aged 25-32 years.

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