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Research Article

Extrapulmonary Tuberculosis Patient's Profile in RSUD Cianjur 2017 – 2019

Rizqi Primasane Hariyani[1], Fita Ferdiana[2], Ferial Hadipoetro[3]

1) Medical Study Program, Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta
2) Department of Pathology Anatomy, Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta
3) Department of Rehabilitation Medicine, Faculty of Medicine and Health, Universitas Muhammadiyah Jakarta

*rizqiprimasane@gmail.com

ABSTRACT

Background: Tuberculosis is one of the 10 causes of death in the world[1]. Indonesia represents the third country for tuberculosis incidence. Based on the WHO data, the number of extra-pulmonary tuberculosis (EPT) in 2017 is around 896,000 cases, that was 14% of 6.4 million tuberculosis patients[2]. The incidence of EPT in Indonesia, in 2012, was 17,420 cases from total of 331,424 cases[3]. So far there was no profile data about EPT in RSUD Cianjur even number of EPT who has been diagnosed by histopathological examination was done. Objective of this study was to determine EPT patient's profile in RSUD Cianjur 2017 – 2018. **Methods:** Design of study was cross sectional, 183 samples obtained from the anatomic pathology laboratory data and the medical record for the period January 2017 - May 2019. **Results:** The results of the study show that the number of EPT patients at RSUD Cianjur in 2017, 2018 and 2019 is as many as 60, 71, and 52 patients. There were 10 patients <15 years of age, 148 patients between 15-50 years of age, and 25 patients >50 years of age. There were 84 male patients and 99 female patients. According to the location, 63 cases occurred in lymph nodes, 67 in the digestive system, 20 in the musculoskeletal system, 25 in the reproductive system, 6 in the thorax, 1 in the thyroid and 1 in the bone marrow. **Conclusion:** The proportion of patients with EPT in RSUD Cianjur in 2017 – 2019 was 6% of all tuberculosis patients. The percentage of the patients <15 years of age was 5.5%, between 15-50 years of age was 80.87%, and >50 years of age was 13.66%. Of these patients 46% were male and 54% were female. The infected location in the digestive system was 36.61%, lymph nodes were 34.43%, reproductive system was 13.66%, musculoskeletal system was 10.93%, thorax was 3.28%, thyroid was 0.55% and bone marrow was 0.55%.

Keywords: Extrapulmonary Tuberculosis, Propotion Age-Gender, Hospital Cianjur.

INTRODUCTION

Tuberculosis is a disease that is caused by Mycobacterium tuberculosis. The disease is transmitted through the air from infected people (1). Tuberculosis must be treated completely because it can cause dangerous complications, thus death. Most tuberculosis cases are pulmonary, but it can also attack other organs, a form known as extrapulmonary tuberculosis. Tuberculosis is one of the 10 cause of death in the world. In 2017, around 10 million people suffered from tuberculosis, 5.8 million cases are male and 3.2 million cases are female, the rest of 1 million cases are children. Tuberculosis cases mostly affect adults (aged > 15 years) at 90% where the percentage of HIV that accompanies tuberculosis is 9% (in Africa 92%, India 27%, China 9%, Indonesia 8%, the Philippines 6%, Nigeria 4%, Bangladesh 4%, and South Africa 3%).Tuberculosis is one of the main goals in Sustainability Development Goals (SDGs) and a top priority in the world. SDG 3.3 targets are eliminating endemic of tuberculosis by 2030. Indonesia ranks third after India and China in the tuberculosis cases. Tuberculosis attacks all ages and genders. From the total number of tuberculosis cases in 2018, the highest incidents are in men over 15 years (57%), followed by women (32%), children under 15 years (around 11%), while 8.6% are HIV sufferers. In Indonesia, the number of new tuberculosis cases in 2017 was 420,994 cases (2). West Java Province is the highest incidence among other provinces with 99,398 cases (3). Tuberculosis incidence in Cianjur reached approximately 11,694 cases in 2017 and in the third semester of 2018, tuberculosis reached 5398 cases. The number of tuberculosis patients in January 2019 was 511,873 cases (3). In 2018, the number of tuberculosis cases in West Java Province reached 99,398 cases, the highest amount of tuberculosis cases in Indonesia (4). Based on the WHO data, in 2017 the EPT incidents were around 896,000 cases. That was 14% of 6.4 million tuberculosis patients. In Asia, EPT cases were around 15% of 2.9 million tuberculosis patients (around 444,000 cases). In Indonesia, the incidence of EPT was 17,420 cases in 2012 from a total of 331,424 tuberculosis cases (5).

The aims of this study were to determine the profile of patients with EPT in RSUD Cianjur in 2017 – 2019 by age and gender.

Extra-pulmonary tuberculosis are often found as nodul in site of infection and often diagnosed as a tumor and followed by doing a biopsy. The tissue from the biopsy was examined by an anatomic pathologist to determine the diagnosis microscopically. Several examinations must be done to diagnose extra-pulmonary tuberculosis, because it is difficult to enforce. Starting from examining the clinical symptoms, microbiology, radiology, clinical pathology, and anatomic pathology. Atypical symptoms shown by the patient causes low diagnosis and treatment of this disease, and can spread to other organs. Clinical symptoms depends on the infected organ. The diagnosis is based on a microbiology culture or an anatomic pathology examination.

In order to establish the diagnosis of EPT, various examinations need to be done so that it can rule out other infections and neoplasms. One examination that is considered quite important is anatomical pathology. Histopathological features of the tuberculosis are tubercles, which are

generally composed of Langerhans datia cells, caseous necrosis, epithelioid cells, inflammatory cells (lymphocytes and plasma cells) and calcifications. The places with active involvement are characterized by typical granulomatous inflammatory reactions which can be either caseous or non-caseous granulomas (6). If collagenization usually shown as a healing response. When granulomas heal, they will turn into calcifications (7).

METHODS

Design of this study was a cross-sectional study. Subject were all patients diagnosed with EPT from histopathological examination at RSUD Cianjur, West Java in 2017-2019. The data was taken from anatomical pathology laboratory and medical records. The study was held on November 28th- November 30th, 2019. Ethical Clearance University of Muhammadiyah Jakarta, Approval Number: 187/PE/KE/FKK-UMJ/XI/2019.

RESULT

Pulmonary tuberculosis data in RSUD Cianjur showed that in 2017, there were 1,238 patients, and in 2018 there were 794 patients. In total, there were 2032 cases (94%) and 6% (131 cases) were patients with EPT (figure1).

The total number of extra-pulmonary tuberculosis patients who have undergone histopathology examination in 2017 were 60 patients, then in 2018 there were 71 patients, and in January-May 2019 there were 52 patients. According to this data, extra-pulmonary tuberculosis patients trend increases every year.

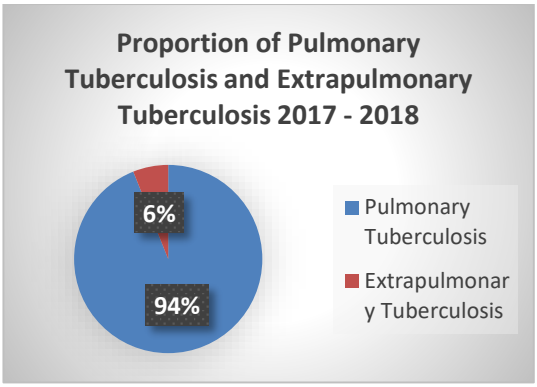

Figure 1. Proportion of Patients with tuberculosis and extrapulmonary tuberculosis in 2017 - 2018.

The highest number of cases were patients in the productive age (15-50 years)

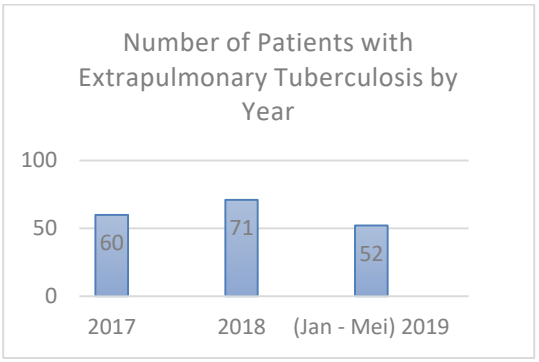

Figure 2. Total Number of Patients EPT by Year.

According to the location, the percentage of EPT in 2017 were 27% in digestive system, 25% in the lymph nodes, while 13% in the reproductive system and about 3% were in the musculoskeletal system and thorax.

In 2018, the highest percentage of infected location were lymph nodes (32%, age between 15 - 50 years). Then in 2019, the most infected location was the digestive system (35%), followed by lymph nodes (23%) and the reproductive system (13%).

Table 1. Distribution of Location and Age in Extrapulmonary Tuberculosis Patients

Location of Infection	Age	2017	2018	(Jan - Mei) 2019
Lymph Node	> 50	3	5	
	15 - 50	15	23	12
	< 15	3	1	1
Digestive	> 50	5		4
	15 - 50	16	21	18
	< 15	3		
Musculoskeletal	> 50	2	1	4
	15 - 50	2	8	1
	< 15		1	1
Reproductive	> 50			
	15 - 50	8	10	7
	< 15			
Thorax	> 50			
	15 - 50	2	1	3
	< 15			
Thyroid	> 50	1		
	15 - 50			
	< 15			
Bone Marrow	> 50			
	15 - 50			1
	< 15			

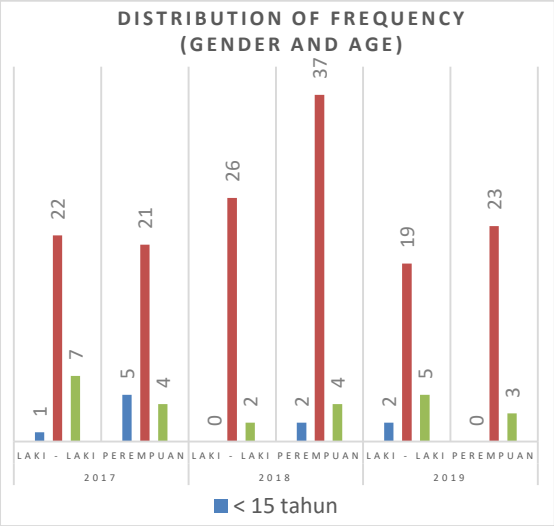

Figure 3. Distribution of Frequency EPT Patient by Gender and Age.

Distribution of EPT patient in 2017 – 2019 based on gender and age, age was categorized to 3 part : under 15 years, 15 – 50 years, and above 50 years. The major population is in the productive age, 37 patients are female and 26 patients are male. Whereas in 2017, male in productive age suffer more EPT compared to female with a difference of 1 person. In 2019, there were 23 female patients in productive age while male are 19 patients. There are more cases of EPT with age above 50 years compared to children.

DISCUSSION

From the results of this study, the total number of EPT patients in RSUD Cianjur were 131 patients (6%) out of the total tuberculosis patientsin 2017 - 2018. While in 2019, the number of EPT cases were 52. The result of a previous study conducted at Immanuel Hospital Bandung in 2014, showed that there were 28.13% EPT cases (8). Compared to this study, the number is quite small. Lee's study in 2013 showed that in Korea, about 20.4% of 36,089 tuberculosis patients were EPT patients (9). Another study conducted in Padang by Mustikawati in 2011 found that the incidence of EPT was 10.8% of the total 295 tuberculosis patients (10). The result of this study is consistent with several other studies which shows that the percentage of EPT incidence is still small when compared with the overall pulmonary tuberculosis incidence rate.

Age

Age is a variable that is often considered in epidemiology. In this study, the age were distributed in 3 categories, children (ages under 15 years), productive ages (15 years to 50 years), and ages over 50 years. Based on the age of the patients, 81% cases were found in the productive age (15-50 years). Another research conducted by Wizri and Banteng in Semarang showed that 47.1% cases were also found in the productive age (1). Likewise, the research conducted

at BBKPM Bandung showed that most patients are of productive age (157 patients). Research in Padang (2008) showed that around 76.55% were patients of productive age (10). Productive age has a higher risk of developing this disease because at the productive age, a person tends to have many activities such as working and also socializing with many people who can make it easier for a person to get this disease.

Gender

One of the risk factors for tuberculosis is gender. The incident of tuberculosis cases is higher in men than women. As in the research conducted by the tuberculosis Prevalence Survey where the number of male patients has 3 times higher risk than women because of the tendency of smoking and alcohol consumptionwhich can reduce the immune system (3). Research in Karyadi Hospital Semarang, showed that 64.70% patients with EPT were men, which is almostthe same as Winda's study that showed that 62% patients were men (1). However, thie result of this study is different from the others, where the number of female patients dominates with 54%. The results of this study is similar to the research in BBKPM Bandung where the incidence of extra-pulmonary tuberculosis in women is around 51% (10).

Location

The most common infected locations for extra-pulmonary tuberculosis patients are the lymph nodes, pleura, bones, joints, urogenital system and meninges. A research conducted in Spain showed that lymph nodes were the most infected location, 30-40%of the total cases of extra-pulmonary tuberculosis (11). Similar to the research at Immanuel Hospital in Bandung, the number of lymph nodes tuberculosis patients were 68.7%, followed by Pleuritis tuberculosis with 21.8%. The results of a research in India showed that the most infected location was also found in lymph nodes (53.7%) followed by pleura (28.7%) (12). The results of the study were similar to those in the Netherlands, with 1,963 cases at the location of lymph nodes, pleura with total 1,036 cases. In contrast, the results of research in Korea showed that the most infected location was pleura, and lymph nodes as the second largest location (9). While the research conducted at Karyadi Hospital Semarang showed that the most infected location was pleura with 21 cases and 17 lymph nodes locations. Not much different from another study conducted by Nassaji, the most infected location was pleura as much as 28.8% (1). Research in America has different results with the most infected location in the bones and joints (27.1%) (13). In RSUD Cianjur starting from January 2017 to May 2019, the results showed that the most infected location was in the digestive system (36.61%), which was different from the study conducted in China where the most infected location was in the musculoskeletal system (41.1% or around 6,433 patients) (14). Differences in location in each study still has to be reviewed, possibly due to the influence of differences in geographic location and population.

CONCLUSION

Based on the data results and analysis that has been done in this research, the following conclusions are the EPT were 6% of all tuberculosis patients in RSUD Cianjur in 2017 - 2018. Based on the age,

it was found that 5.5% were <15 years, 80.87% were 15-50 years, and 13.66% were > 50 years. The number of female patients (54%) are higher than male patients (46%). The infected location of EPT patients in RSUD Cianjur during 2017 - 2019 were 36.61% in the digestive system, 34.43% in lymph nodes, 13.66% in the reproductive system, 10.93% in the musculoskeletal system, 3.28% in the thorax, 0.55% in the thyroid and 0.55% in the Bone Marrow.

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CONFLICT OF INTEREST

The authors state they have no conflict of interest, and no affiliation or connection to or with any entity or organization, which may raise a question of bias in discussion and conclusion of the manuscript.

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