PROFILE OF MDR-TB PATIENTS IN DOTS OUTPATIENT CLINIC, Dr. SOETOMO HOSPITAL, SURABAYA, FROM JANUARY 2010 TO MARCH 2011

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ABSTRAK

Prevalensi Multi Drugs Resistance Tuberculosis (MDR-TB) di Indonesia cukup tinggi. Hal ini dapat disebabkan oleh berberapa faktor, setelah mengetahui beberapa faktor data ini dapat digunakan sebagai masukan khususnya bagi Masyarakat dan Rumah Sakit, dalam upaya untuk mencegah transmisi MDR-TB. Jenis penelitian ini adalah epidemiologi deskriptif dengan desain observasional dengan menggunakan catatan medis pasien MDR-TB di RSUD Dr. Soetomo periode Januari 2010-Maret 2011. Sampel yang digunakan dalam penelitian ini adalah 56 pasien dengan MDR-TB. Dalam studi ini kita ketahui dari MDR-TB profil pasien dengan variabel jenis kelamin, umur, pendidikan, pekerjaan, jenis resistensi, riwayat pengobatan TB. Hasil penelitian ini menunjukkan bahwa jenis kelamin pasien MDR -TB adalah 50% adalah laki-laki dan 50% adalah perempuan, Penderita pada poliklinik DOTS RSUD Dr.Soetomo mayoritas mempunyai rentang umur 41-55 (usia produktif tua). Karyawan atau buruh serta tingkat pendidikan SMA yang mendominasi pekerjaan penderita pada poliklinik DOTS RSUD Dr.Soetomo. Kategori TB kambuh merupakan penyebab terbesar MDR-TB pada Penderita poliklinik DOTS RSUD Dr.Soetomo.(FMI 2013;49:177-181)

Kata kunci: TB, resistansi obat, MDR–TB

ABSTRACT

Prevalence of Multi Drugs Resistance Tuberculosis (MDR-TB) in Indonesia is quite high. This can be caused by a couple of factors, after knowing some factors of this data can be used as input for the Community and particularly the Hospital, in an effort to prevent the transmission of MDR-TB. This research was descriptive epidemiologic observational design using the medical records of patients of MDR-TB at Dr Soetomo Hospital the period January 2010-March 2011. The sample used in this study were 56 patients with MDR-TB. In this study we know of MDR-TB patient profile variables gender, age, education, occupation, type of resistance, history of TB treatment. The results of this study showed that the gender of MDR-TB patients was 50% were male and 50% were women, patients on DOTS clinic Dr.Soetomo Hospitals majority of have useful life span of 41-55 (productive old age). Employee or worker and high school levels that dominate the work of the DOTS clinic patients in hospitals Dr.Soetomo. Categories TB relapse is the greatest cause of MDR-TB DOTS clinic in Patients Dr.Soetomo Hospital.(FMI 2013;49:177-181)

Keywords: TB, Drug Resistance, MDR-TB

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INTRODUCTION

Tuberculosis (TB) is an infectious disease that is still the world's attention. Until now, there has been no single country that is free of TB. Mortality and morbidity due to *Mycobacterium tuberculosis* germ is also high. In 2009, 1.7 million people died from TB, including 600,000 women, while there were 9.4 million new TB cases, 3.3 million are women. One third of the world population has been infected with TB where the majority of TB patients are of childbearing age that is 15-55 years of age.

In Indonesia estimated there are more than 500,000 new cases pulmonary TB each year with BTA (+). Based on the results of 1992 Household Health Survey found that pulmonary TB become the second largest cause of death in Indonesia (Codin 2000). The problem is not only in an increased incidence of pulmonary tuberculosis, but also the incidence of Multi-Drug Resistant TB (MDR-TB), MDR-TB is resistance to at least isoniazid and rimfamisin, briefly MDR-TB is resistant to INH and Rimfamisin simultaneously with or without first line Anti-tuberculosis Drug (ATD). According to current WHO Indonesia is ranked number eight the number of cases of MDR-TB from 27 countries.

Preliminary data OAT drug resistance survey conducted in first-line Central Java in 2006, shows the number of MDR-TB among new cases is 2.07%, this figure increased in previously untreated patients is 16.3% (Soedarsono 2010). Based on the analysis of survey

data, WHO estimates there are nearly half a million new cases of MDR-TB. The amount equivalent to 5% of the total 9 million new cases of TB worldwide each year. The highest figure was recorded in Baku, capital of Azerbaijan, i.e., there are nearly a quarter of all new TB cases (22.3%) were reported as multidrug-resistant. The proportion of MDR-TB among new TB cases was 19.4% in Moldova, 16% in Donetsk, Ukraine, 15% in Tomsk Oblast in the Russian Federation and 14.8% in Tashkent, Uzbekistan. These figures exceed the highest levels of drug resistance published by WHO report in 2004. Surveys in China also stated that MDR-TB is widespread in the country. Many factors can lead to the onset of MDR-TB, some of these factors are: Host factors, agents, and therapy, based on these conditions, we should bear in mind the relationship between the Host, Agent, and therapy to the emergence of MDR-TB, so as to minimize the occurrence of MDR-TB in Dr. Soetomo Hospital.

MATERIALS AND METHODS

This study is an observational study with cross-sectional design because the observations made shortly or within a certain period and each subject of study is only done once the observations during the study (Budiarto 2003). Research sample that is used in this study is the data of all patients with Multi Drug Resistant TB (MDR-TB) are doing treatment at the DOTS Polyclinic Dr. Soetomo Hospital the period January 2010-March 2011 who met the inclusion criteria. How to the retrieval of data use method of secondary data, that is data taken from patients with MDR-TB status in HMD (Health Medical Document), which met the inclusion criteria. Inclusion criteria were MDR-TB treatment programs Participants are still running treatment at the DOTS Polyclinic Dr. Soetomo Hospital the period January 2010-March 2011 that has data HMD (Health Medical Document) which complete. Her medical record data were about age, gender, occupation, and education. Besides, it also researched other variable, that is resistance type and history of TB treatment.

History of TB treatment are grouped in several groups Individuals who experienced treatment failure after retreatment and chronic cases, individuals which failed therapy with Anti-Tuberculosis Drug (ATD) to category 2 (sputum remained positive after 3 months), but the OAT Individuals treated sputum remained positive at month 3 after administration of insertions categories 1, individuals which returned after DO in the treatment of category 1 or category 2, has a history of TB treatment is not adequate, not DOTS or bad management, Living in areas of high MDR-TB cases, relapse TB cases, individuals which have complaints in close contact with

TB and MDR-TB patients and individuals with HIV infection.

The data is then divided into the 4 major groups that is INH and RIF resistance, INH resistance, RIF, and EMB, INH resistance, RIF, and PZA, INH resistance, RIF, EMB, and PZA. The data has been collected, then put in a frequency distribution table and in percentage. Furthermore, the results are presented in pie chart percentages. Data on age, occupation, education and gender are also presented in pie charts and rods.

RESULTS

The results of this study showed that of the 56 MDR-TB patients, the male patients of MDR-TB is 28 (50%) and 28 patients (50%) were female
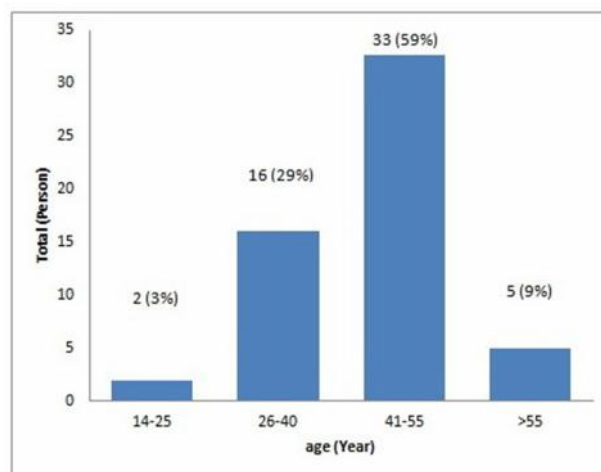

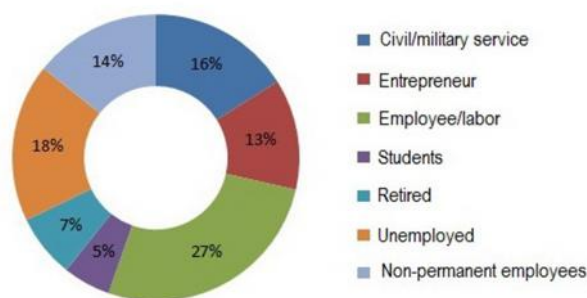Figure 1. Distribution of MDR-TB patients by age

Figure 2. Distribution of MDR-TB patients by Employment
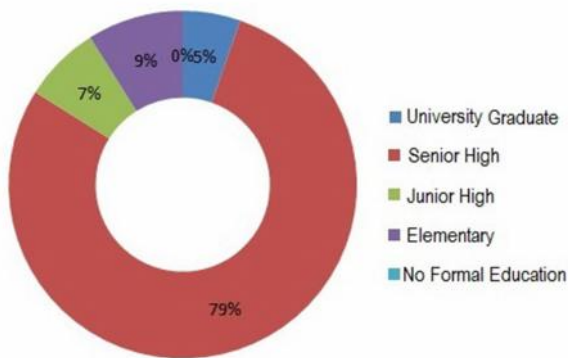
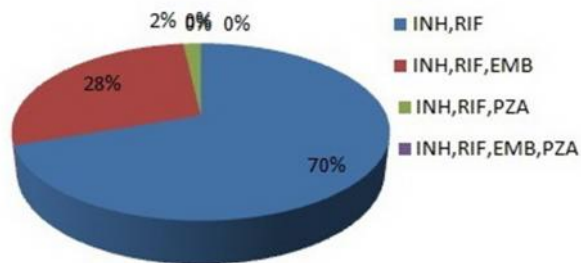Figure 3. Distribution of MDR-TB patients by Education

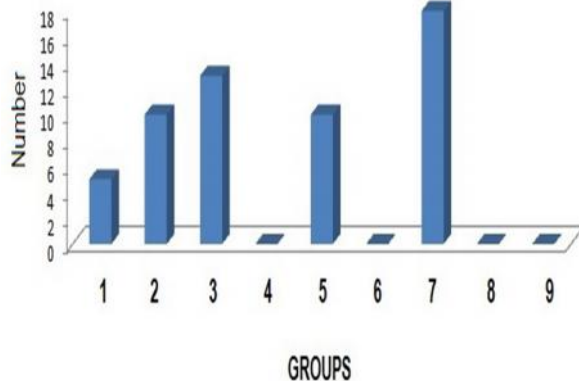Figure 4. Distribution of MDR-TB patients by Reistance of Drugs

Figure 5. Distribution of MDR-TB patients by TB History

From the results, patients with MDR-TB is no tendency in either of the sexes, it is caused by the bacteria

Mycobacterium tuberculosis does not have a tendency to either of the sexes, not only that transmission of MDR-TB can also be through the air, so anyone can be affected this disease if their conditions are not immune either. Patients with MDR-TB age most are in the range of 41-55 years old, at that age most people in Indonesia are still productive and useful life span of the possibility of immunity levels have decreased, and it is easier for those affected by or infected with MDR-TB, work which dominates in MDR TB patients is an employee or worker this can be seen from the behavior of employees or workers who usually work in a ventilated place less sunlight, it is that facilitate transmission of MDR-TB to others.

At the educational level of patients suffering from MDR-TB, the level of high school or equivalent that has the highest incidence rate, this may be due to the level of education in Indonesia is getting better, and the possibility of patients with high levels of education have had enough knowledge of TB compared with patients with junior high or elementary school level, and they want to check into hospital, which is why the data in the Hospital is dominated by the level of high school education. From the results in patients with MDR-TB reistensi most only found in the group of drug resistance to INH and RIF, this happens because of INH and RIF is a drug that is active against *Mycobacterium tuberculosis*. INH function inhibits cell wall synthesis mikolik acid (the most important element in *Mycobaterium tuberculosis* for self-defense), and RIF have the workings of inhibiting the synthesis of bacterial RNA polymerase. Based on a history of TB disease, namely the 7 groups with TB relapse of the most experienced MDR-TB is possible because of the germs back relapse or recurrence has resistance to anti-tuberculosis drugs are more powerful.

DISCUSSION

This study is a descriptive epidemiological study that describes the profile of patients with MDR-TB variables gender, age, occupation, education, type of drug resistance, and a history of TB in DOTS clinic Dr. Soetomo Hospital Surabaya period January 2010-March 2011. In this study, the number of MDR-TB patients in the variables gender balance, 28 men and 28 women, is not the same as the results of research conducted Arifin Nofizar et al (2010), in his research on the data that get more men suffer cases of MDR-TB, is probably due to data taken from the HMD (Health Medical Document) there that do not meet the inclusion criteria and were eliminated.

In terms of age, the study states that the incidence of MDR-TB is more common in the age range 41-55 years with a number of 33 patients (59%). These results are consistent with studies by Reisa (2009) stating that there are people with MDR-TB with a lifespan of 45-54 years, amounting to 68 of 250 research subjects, or 26.9%. The majority of patients in these study subjects MDR-TB have a job as an employee or laborer with a total of 15 people, this could be caused by the customs employees or laborers working on one room with minimal ventilation, therefore *Mycobacterium tuberculosis* germs easily transmitted to others intermediaries through the air.

In research, Nofizar et al (2010) stated that the education level of the most widely held by people with MDR-TB is a high school level or equivalent and the results of this study also showed similar results ie MDR-TB patients who had high school or an equivalent amount to 44 people out of 58 people, this is due by the level of awareness of the dangers of TB at the high school level of education higher than elementary or junior high, it drives them went to the hospital and they are known to be infected with MDR-TB or not, so not necessarily those educated below high school level or in top high school has a smaller risk than those educated above the level of high school or high school.

In the variable type of drug resistance showed the greatest resistance is resistance to the drug combination Rimfampisin and Izoniazid (RIF and INH), this is in accordance with the description by Sampurno (2007) at symposia that in Turkey of 785 cases of pulmonary tuberculosis patty marker 35% of cases of drug-resistant 1, 11.6% two drugs, 3.9% 3 drug, and 2.8% 4 drugs. In Pakistan, found 17.7% of resisten rifampicin, isoniazid resistant 14.7%, and 8.7% resistant to ethambutol. In Indonesia From 174 culture-positive TB in Dr Rotinsulu Lung Hospital Bandung in 2005, there were 28.2% resistant RH, RHE 17.8%, 13.8% RHEZ, RHEZS 10.3%, 5.7% RHEZKS.

Distribution history of TB disease in this study showed that the highest number of people with MDR-TB is the group of the seven categories namely category of TB relapse, this is in line with the literature which states that the incidence of MDR-TB caused more secondary resistance of the primary resistance. This can happen because of the possibility that the bacteria *Mycobacterium tuberculosis* is still in the patient's body resurfaced with mutations that make bacteria more resistant to first-line OAT, other factors that cause relapse of TB cases is the lack of awareness of TB patients to take the medicine that it can be trigger of MDR-TB.

Pulmonary tuberculosis is influenced by several factors, namely: Host, Agent, and Therapy. The hosts are referred to in this conceptual framework is the factor of people that include: Age, Gender, Employment, Education, host of factors that can reflect the patient treatment compliance, it can affect the failure or success of a therapy, so if people do not obey take medicine and then periodically treatment therapy will likely fail and can cause the bacteria *Mycobacterium tuberculosis* resistance (in this case the therapy is done first-line therapy) factors referred to in the framework of an agent is the bacteria *Mycobacterium tuberculosis* that has been resistant in the absence of the influence of treatment or usually called primary resistance. In the conceptual framework is the first-line therapy is the therapeutic use Anti-Tuberculosis Drug first line is: Rifampicin, Isoniasid, Ethambutol, Pyrazinamide.

CONCLUSION

In conclusion, there is no tendency for one sex to patients in hospitals Dr. Soetomo DOTS clinic. Patients on DOTS clinic Dr. Soetomo manyoritas Hospital has useful life span of 41-55 (productive old age). Employee or worker and high school levels that dominate the work of patients in in DOTS clinic Dr. Soetomo Hospital. Categories TB relapses is the greatest cause of MDR-TB Patients in DOTS clinic Dr. Soetomo Hospital.

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REFERENCES

Budiarto E (2003). Metodologi Penelitian Kedokteran. Jakarta, EGC, p 58

Codin N (2000). Kinerja pengobatan program pemberantasan TB strategi DOTS di provinsi Sumsel, Jabar, Jateng, dan Sulteng 1998-1999. Medika 8, 493-504

Nofizar D, Nawas A, Burhan E (2010). Identifikasi faktor risiko tuberkulosis multidrug resistant (TB-MDR). Maj Kedokt Indon 60, 537-545

Reisa (2009). Profil penderita tuberkulosis paru di RSUP Haji Adam Malik Medan pada Bulan Maret-September 2009. Available from http://www.scribd.com/doc/51290910/43/Distribusi-Subjek-Penelitian-Berdasarkan-Jenis-Kelamin-dan-MDR-TB. Accessed December 1, 2011

Sampurno (2007) Kupas Tuntas Tuberkulosis. Simposia Update on Tuberculosis and Respiratory Disorders 6, 12

Soedarsono (2010). Buku Ajar Ilmu Penyakit Paru, In: Jusuf M, Winariani, Hariadi S (eds). Ilmu Penyakit Paru, Surabaya, Departemen Ilmu Penyakit Paru, FK Unair, RSUD Dr Soetomo, p 27