

ACID-FAST BACTERIA *M. leprae* EXAMINATION IN LEPROSY PATIENTS BEFORE AND AFTER TREATMENT

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ABSTRAK

Penyakit Kusta disebabkan oleh bakteri *Mycobacterium leprae* yang termasuk bakteri golongan intra selular. Penyakit ini menyerang manusia, terutama di kulit dan susunan syaraf tepi, dan memerlukan waktu yang cukup lama dalam perjalanan penyakitnya atau dikenal sebagai penyakit kronis (Miller, 1991). Tujuan penelitian untuk mengetahui perbedaan pada pemeriksaan di laboratorium *Mycobacterium leprae* dan mengamati bakteri *Mycobacterium leprae* pada sediaan skin smear pada penderita dini sebelum pengobatan dan sediaan skin smear pada penderita kronis setelah pengobatan. Penelitian ini secara deskriptif. Sampel dalam penelitian ini adalah kerokan jaringan kulit yang diambil dari cuping telinga kanan, cuping telinga kiri, dahi dan dagu dari 20 penderita kusta. Dari 20 penderita kusta didapatkan pemeriksaan BTA *Mycobacterium leprae* sebelum pengobatan adalah 12 (60%) dengan hasil positif dan 8 (40%) dengan hasil negatif. Sedangkan pemeriksaan *Mycobacterium leprae* sesudah pengobatan didapatkan 12 (60%) dengan hasil positif dan 8 (40%) dengan hasil negatif. Terdapat 12 (60%) adalah Type MB dan 8 (40%) adalah Type PB. Jadi kesimpulannya adalah Pemeriksaan *Mycobacterium leprae* sebelum pengobatan adalah 12 (60%) adalah Type MB dengan Pemeriksaan BTA Positif sedangkan sesudah pengobatan ada 8 (40%) adalah Type PB dengan Pemeriksaan BTA negatif. Walaupun hasil pemeriksaan pada type MB masih positif tetapi hasil BI dan MI sudah negatif. Implikasi dalam penelitian ini diharapkan perlunya sosialisasi kepada masyarakat bahwa walaupun hasil pemeriksaan laboratorium negatif tetapi wajib harus mendapat pengobatan. Walaupun secara teori untuk type PB hasil pemeriksaan BTA negatif tetapi tetap harus dilakukan. (FMI 2013;49:116-118)

Kata kunci: Penyakit Kusta, Pemeriksaan BTA (*Mycobacterium leprae*)

ABSTRACT

Leprosy is caused by the bacterium *Mycobacterium leprae*, including intra- cellular bacterial groups. The disease attacks humans, especially in the skin and nervous edge, and requires a long time in the course of the disease, known as chronic diseases (Miller, 1991). The purpose of the study to determine differences in the examination in the laboratory to observe the bacteria *Mycobacterium leprae* and *Mycobacterium leprae* in skin smear preparations early in patients before treatment and smear preparations in patients with chronic skin after treatment. This research is descriptive. The sample in this study is the scrapings of skin tissue taken from the right ear lobe, left earlobe, forehead and chin of the 20 lepers. Obtained from 20 patients with leprosy *Mycobacterium leprae* smear examination before treatment was 12 (60%) with positive results and 8 (40%) with negative results. While checking *Mycobacterium leprae* obtained after treatment of 12 (60%) with positive results and 8 (40%) with negative results. There were 12 (60%) are Type MB and 8 (40%) are Type PB. So the conclusion is *Mycobacterium leprae* examination before treatment was 12 (60%) were Type MB with positive sputum smear examination after treatment, while there were 8 (40%) were Type PB with negative sputum smear examination. Although the results of the examination on the type of MB is still positive, but the results have been negative BI and MI. The implications of this research are expected need for dissemination to the public that despite negative laboratory results, but shall have to receive treatment. Although it is theoretically possible for the PB -type negative smear test results but remains to be done. (FMI 2013;49:116-118)

Keywords: leprosy, acid-fast bacteria (*Mycobacterium leprae*) examination

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INTRODUCTION

Leprosy is caused by the bacterium *Mycobacterium leprae*, including intra- cellular bacterial groups (Noordeen & Hombach 1993). The disease attacks humans, especially in the skin and nervous edge, the incubation period takes long known as a chronic

disease, approximately 3 to 10 years before the first clinical symptoms appear, because the bacteria *Mycobacterium leprae* very slow to divide. Rod-shaped bacteria that is resistant to acids, including families of Mycobacteriaceae on the basis of morphological, antigenic, and there is genetic similarity with other *Mycobacterium* (Rees & Young 1994). Leprosy is

divided into two types namely dry leprosy (tuberculoid) and wet leprosy (lepromatous), wet type has more patches than the dry type, the people are even more afraid of the lepers dry type, due to defects in the hand more visible than the wet type (Bryceson & Pfaltzgraff 1990). Leprosy can strike all ages, although cases in infants aged less than one year is very rare. Age - specific incidence peaked during childhood in most developing countries, up to 20 percent of cases occur in children under the age of 10 years (Pfaltzgraff & Ramu 1994). Based on the treatment of leprosy eradication program by the World Health Organization since 1993, the prevalence of leprosy in each country is expected to under one per ten thousand population. In Indonesia there are places that have not reached the elimination target, in the northern coastal region (World Health Organization 2000). Based on preliminary data in Kediri Leprosy Hospital from January to March 2012 300 patients were bacteriological laboratory examination (Leprosy Hospital of Kediri 2012).

Eradication of leprosy depends on the discovery and treatment of patients. The main goal of leprosy elimination program is to break the chain of transmission to decrease the incidence of disease, treat and cure patients and prevent the onset of disability (WHO Study Group). Various attempts have been made to reduce the prevalence as low as possible by treating old diseases as well as possible and to know new people as early as possible. During the attempt to find lepers based on clinical examination and laboratory examinations in bacteriology, is supporting the clinical diagnosis in suspected leprosy patients so that the role of the analyst is very significant force in establishing the diagnosis (Ministry of Health Republic of Indonesia 2002). The study looked at the differences in *Mycobacterium leprae* laboratory tests before and after treatment.

MATERIALS AND METHODS

Study is a descriptive research, to find a picture of the differences in the examination *Mycobacterium leprae* in leprosy patients before and after treatment in Leprosy Hospital. In patients taking skin smears done. In preparation obtained, do Gabbet Kinyoun staining and reading of the results is done according to the Ridley-Jopling scale is logarithmic.

RESULTS

Based on the results of smear examination *Mycobacterium leprae* before and after treatment in Kediri Leprosy Hospital Laboratory showed that of 20

leprosy patients there were 12 (60 %) with positive results of smear examination of *Mycobacterium leprae* with Type MB (Multibacillar) before treatment and after treatment, whereas there 8 (40 %) leprosy patients with negative results of smear examination of *Mycobacterium leprae* with Type PB (Pausibacillar) before treatment and after treatment. *Mycobacterium leprae* smear examination results before and after treatment obtained the following results : Before treatment at MB type as many as 12 people with Acid Bacillus examination results : positive with positive MI values at 4, while the PB type 8 people workup Acid Bacillus : negative. After treatment in as many as 12 MBtype examination Acid Bacillus : positive but a decline in the value of BI and MI have a negative value. While the results of PB -type Bacillus Acid : negative.

DISCUSSION

Leprosy is a chronic disease caused by infection with *Mycobacterium leprae* (*M. leprae*) were the first to attack the peripheral nerves, can then attack the skin, oral mucosa, upper airway, reticuloendothelial system, eyes, muscles, bones and testes except the central nervous system. In most people infected may be asymptomatic, but in a small proportion showing symptoms and have a tendency to become disabled, especially in the hands and feet (Job 1994).

The factors that determine the occurrence of leprosy causes an obligate intracellular nature and have a great affinity to the nerve cells (Schwan Cell) and the cells of the reticuloendothelial system. Only source of transmission to humans the only one to date. Nasal mucosa has long been known as a source of bacteria, skin scrapings from patients with lepromatous leprosy type indicates untreated bacteria by 10 to 100, have proven that the upper airway of patients with lepromatous type is the most important source of bacteria in the environment. Transmission of leprosy has a long incubation period of 2 to 5 years, but for many years, there was transmission of the bacterium *Mycobacterium leprae* intact (living) out of the patient's body and into the body of another person. Theoretically transmission can occur with prolonged contact way, people who are already taking medication regimens according to WHO does not become a source of transmission to others. Of entry of bacteria into the host's body has yet to be ascertained, estimated through the upper respiratory tract and through non-intact skin contact. The diagnosis of leprosy is based on the discovery of cardinal signs, hypopigmented or erythematous patches, flat (macular) or elevated (plaque). Numbness of the patches is totally or partially to the sense of touch, sense of temperature, and pain.

accompanied by pain and may also be accompanied or without neurological dysfunction affected, impaired sensory function of: numbness, impaired motor function: paresis or paralysis, impaired autonomic function: dry skin, cracking, edema, impaired hair growth acid-resistant bacteria found of the earlobe skin smear and skin lesions on the active, sometimes material obtained from skin or nerve biopsy. From the results of this study conducted from April 10 to June 30, 2012, a total of 20 leprosy patients were examined, there were 12 (60%) leprosy patients with positive results in the examination of *Mycobacterium leprae* before and after treatment, while 8 (40%) leprosy patients with results *Mycobacterium leprae* negative examination before and after treatment. Although before and after treatment had positive results but after treatment still value MI (Morphological Index) becomes negative. Since the examination aims to determine the value of MI bacterial transmission power, and assess the progress of treatment.

It is proved that leprosy patients have received treatment. Of the 20 samples of leprosy patients studied, there were 12 (60%) were Type MB with positive sputum smear examination, while 8 (40%) were Type PB with negative sputum smear examination. This is consistent with the main guidelines for determining classification/type of leprosy according to World Health Organization (2000) that the preparations for type PB smear smear examination results, while negative for *Mycobacterium leprae* MB type smear examination positive *Mycobacterium leprae*.

After the treatment given to the examination of April to June has decreased. Although the results remain positive but decreasing bacteria found. Based on preliminary data in Kediri Leprosy Hospital from January to March in 2012 as many as 30 patients in bacteriological laboratory examination, after treatment had increased to cure the disease in patients with leprosy (Leprosy Hospital of Kediri 2012).

CONCLUSION

From the study of 20 patients with leprosy, it was concluded that based on typenya there were 12 (60%) patients with Type MB leprosy in *Mycobacterium leprae* smear examination before treatment with positive results and 8 (40%) with Type PB leprosy patients in both smear *Mycobacterium leprae* after treatment with negative results. Society needs to get the socialization that despite negative laboratory results, but shall have to receive treatment. Although it is theoretically possible for the PB -type negative smear test results but treatment remains to be done.

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