Characteristics of Leprosy Patients in Jakarta

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Abstract

Introduction: Currently leprosy remains a global health problem, especially in developing countries like Indonesia. The worldwide prevalence of leprosy is 0.2 out of 10 000 people in 2006. According to the Ministry of Health Republic of Indonesia, 0.91 out of 10 000 Indonesian suffer from leprosy by 2008.

Methods: This cross-sectional study observed the demographic and clinical characteristics of newly-diagnosed leprosy patients treated in the Dermatology and Venereology Clinic, Cipto Mangunkusumo Hospital, Jakarta, from 2006 to 2009.

Results: There were 1 021 newly diagnosed leprosy cases, which comprises of 630 (61.7%) male and 391 (38.3%) female patients. The majority of the leprosy patients (44.6%), belongs to productive age-group of 25-44 years old. Over 80% of the leprosy cases were multi-bacillar (MB) type. Out of the 247 (24.2%) leprosy reactions experienced, 168 (16.5%) were reversal reactions, and 79 (7.7%) were erythema nodosum leprosum (ENL) reactions. There were 91 patients (8.9%) suffered from grade II leprosy disability, the majority of which (3%), belongs to the 25-44 years old age group.

Conclusion: The demographics and clinical characteristics presented in this study may provide a rough description on the condition of leprosy cases treated in major provincial hospitals all over Indonesia. J Indon Med Assoc. 2012;62:423-7.

Keywords: Leprosy, new cases, clinical characteristics, demographic characteristics, Jakarta
Karakteristik Pasien Kusta di Jakarta

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Abstrak

Pendahuluan: Sampai saat ini, penyakit kusta masih merupakan masalah kesehatan di dunia terutama di negara berkembang, seperti Indonesia. Prevalensi kusta dunia adalah sebesar 0,2 per 10 000 jiwa pada 2006. Menurut Kementrian Kesehatan Republik Indonesia 0,91 dari 10 000 penduduk Indonesia menderita kusta pada 2008.


Hasil: Terdapat 1021 pasien kusta kausus baru, yang terdiri dari 630 pasien laki-laki (61,7%) dan 391 perempuan (38,3%). Pasien kusta terbanyak adalah pasien dalam rentang kelompok usia produktif 25-44 tahun, yaitu 455 orang (44,6%). Lebih dari 80% tipe kusta kausus baru adalah tipe multibasilar (MB). Dari 247 (24,2%) pasien yang mengalami reaksi, 168 (66,5%) pasien mengalami reaksi reversial, dan 79 (7,7%) penderita mengalami reaksi eritema nodosum lepromatous (ENL). Didapatkan 91 (8,9%) pasien memiliki kecakatan derajat II, dengan mayoritas (31%) merupakan kelompok usia 25-44 tahun.


Kata kunci: kusta, kausus baru, karakteristik klinis, karakteristik demografis, Jakarta

Introduction

Leprosy, Morbus Hansen (MH), is a chronic infection of *Mycobacterium leprae* (*M. leprae*) which predominantly affects the skin and nervous system. The Indonesian Leprosy Elimination Taskforce claimed to have successfully reduced the incidence rate to less than 1 per 10 000 people in the mid 2000s. However, recent report shows that leprosy remains a public health problem in Indonesia.

The global prevalence of leprosy is 0.2 out of 10 000 people, whereas the prevalence of leprosy in Indonesia is almost five times higher, affecting 0.91 out of 10 000 people in 2008, according to the Indonesian Ministry of Health.

The World Health Organization (WHO) also reported that 17 441 new cases were detected in Indonesia in 2008, which places the country as the third highest incidence of leprosy worldwide.

Late diagnosis of MH may result in irreversible nerve damages, and eventually, in permanent disabilities. The physical deformities caused by leprosy is often misunderstood and considered frightening by the community. This disease is still associated with undesirable social stigma which severely impacts the patients’ physical abilities, economic, and social lives.

Early diagnosis and prompt treatment are therefore necessary to present these complication. In order to provide a better understanding of MH cases in Indonesia, this study aims to review the recent demographics and clinical characteristics of MH patients diagnosed at the Cipto Mangunkusumo Hospital, national referral hospital of Indonesia.

Methods

This is a descriptive study of leprosy patients who were diagnosed and treated in Dermatology and Venereology Clinic of Cipto Mangunkusumo Hospital Jakarta, Indonesia, from 2006 to 2009. The database was compiled from individual patient data collected on a standardized medical form. The collected data consist of the patient’s age, gender, type of leprosy, type of MH reaction, and associated disabilities; all of which were classified according to WHO guidelines.

Leprosy cases were classified on the basis of clinical manifestations and skin smear results. Its type is classified based on skin smears. Patients with negative smears at all sites are grouped as paucibacillary leprosy (PB), while those with positive smears at any site are grouped as multibacillary leprosy (MB). Its reaction is classified into reversal reaction (RR) and erythema nodosum lepromatous reaction (ENL). The
disability discussed in this study consists of any disability found in the extremities, which is further divided into three grades, namely: grade 0 disability - there is no disability or anesthesia, grade I disability - presence of anesthesia without disability, and grade II disability - presence of any disabilities. Descriptive demographics and clinical characteristics of these patients were presented systematically.

Results

Demographics

Between 2006 and 2009, there were 1,041 newly diagnosed leprosy cases in our center. The data collected for the study consist of 1,021 patients with either PB or MB leprosy type. Twenty other patients presented with indeterminate or other leprosy types, and this were excluded from the data presentation. Among all of the newly diagnosed leprosy cases, 630 (61.7%) were male and 391 (38.3%) were female patients. The majority of the leprosy patients, 445 (44.6%), belongs to the productive age group (25-44) years old. Pediatric cases (age below 14 years old) consist of 66 patients (6.5%), 6 (0.6%) of which were younger than four years old.

Overall, there was a steady decline in the number of newly diagnosed leprosy cases during the study period. The number of newly diagnosed leprosy in year 2006, 2007, 2008, and 2009 was 287, 271, 247, and 216 cases, respectively (Table 1).

Table 1. Demographics of Newly Diagnosed Leprosy Patients

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>184</td>
<td>178</td>
<td>130</td>
<td>138</td>
<td>630 (61.7)</td>
</tr>
<tr>
<td>Female</td>
<td>103</td>
<td>93</td>
<td>117</td>
<td>78</td>
<td>391 (38.3)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤4</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>6 (0.6)</td>
</tr>
<tr>
<td>5-14</td>
<td>16</td>
<td>13</td>
<td>18</td>
<td>13</td>
<td>60 (5.9)</td>
</tr>
<tr>
<td>15-24</td>
<td>99</td>
<td>83</td>
<td>62</td>
<td>61</td>
<td>305 (29.9)</td>
</tr>
<tr>
<td>25-44</td>
<td>118</td>
<td>108</td>
<td>124</td>
<td>105</td>
<td>455 (44.6)</td>
</tr>
<tr>
<td>45-64</td>
<td>41</td>
<td>54</td>
<td>38</td>
<td>30</td>
<td>163 (16)</td>
</tr>
<tr>
<td>≥65</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>7</td>
<td>32 (3.1)</td>
</tr>
</tbody>
</table>

Clinical Characteristics

Leprosy Type. Most of the newly diagnosed leprosy cases in our center were MB type, which affected 837 patients (82%), 538 (52.7%) male and 299 (29.3%) female patients. The remaining 191 (18.7%) patients suffered from the PB type, 99 (9.7%) of whom were male, and 92 (9%) female. Almost all of the MB and PB patients were older than 14 years old (Table 2).

Reaction Types. Leprosy reaction is divided into two kinds, reversal reaction (RR) and erythema nodosum leprosum (ENL) reaction. Out of 247 (24.2%) patients who experienced leprosy reactions, 168 (16.5%) had reversal reactions and 79 (7.7%) had ENL reactions. The data shows that male patient are more likely to experience leprosy reaction compared to female. The reaction identified in this study developed in 156 male patients (15.3%) cases) and 91 female patients (9% cases).

Among the newly-diagnosed leprosy patients, the reaction was found in adult at its highest rate among adult within productive age, with total of 240 patients (23.5%) experience either RR or ENL reaction. Out of 168 patients with RR, 25 (2.5%) patients suffered from PB type, and 150 (14.7%) patients from MB type. Of all new cases diagnosed in pediatric patients, seven had RR and 1 had ENL reaction. No reaction was detected in patients below four years old. From seven patients with RR reaction, three of them were male, and four others were female. Among patients above than 14 years old, 168 cases were found with RR, and 72 patients were found with ENL reaction. The ratio of male to female was 1.6:1.

From all leprosy patients with RR, 103 were male and 65 were female. All patients with ENL reaction were those who were diagnosed with MB type (72 patients). One patient below 14 years old was found with ENL reactions. Seventy one (7%) adult leprosy patients had ENL reaction of whom were male, and 23 were female.

Disabilities

The extent of disability which may develop in leprosy patients is classified into grade I disability and grade II disability. From collected data throughout 2006-2009, 91 (8.9%)
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cases of grade II disability were found among 1021 newly diagnosed patients. From all the patients with grade II complication, 60 (5.9%) were men and 31 (3%) were female with a 1.9:1 male-to-female ratio.

Grade II disability was most commonly found in adult within productive age group. There were also 6 cases of pediatric cases with grade II disability, and 2 of whom were less than 4 years old.

Among 91 leprosy patients with grade II disability, 65 suffered no reaction, 13 cases presented with RR, and 13 cases presented with ENL reactions. From all the patients who had grade II disability, 12 were diagnosed with PB type, while 79 patients had MB type.

Discussion

The number of newly-diagnosed leprosy cases in our center declined from year 2006 to 2009, at a rate of 10 to 12.6% annually. This is a more rapid decline than global leprosy incidence global trend, which reported an annual decline of 4% between year 2006 and 2007. However, WHO reported that the country incidence of leprosy remains stable over the past decade in Indonesia.8 For this reason, the decline of leprosy number in our center might be contributed by improvement on primary health service, which reduce the need for referrals.

Majority of our patients were males, 61.7%, with a male to female ratio of 1.7. This is similar to reports from other cities in Indonesia,9 and other endemic Asian countries, such as Nepal with reported male to female ratio of 1.56.8 The higher male to female ratio may be attributed to Asian traditions and lower female status, resulting in less female workers, and consequently less mobility and exposure of females to pathogens. Another possible explanation is under-reporting of cases due to low education and the fear of social stigma.8

Most of our leprosy patients were adult males, and the majority, 44.6%, are in productive ages of 25-44 years old. This is a major concern since leprosy-associated disabilities will severely impact their productivity and socioeconomic life. Ebenso, et al9 emphasized the importance to address leprosy disabilities because these patients would be rejected in social life and have difficulties in finding jobs. For this reason, disabled leprosy patients are unable to live by themselves and become very dependent on their family members.

Prevalence of leprosy in children is one of the important indicators in monitoring and determining the level of transmission of this disease in population.10 The number of leprosy cases in children observed in this study was 66 cases (6.47%), which is relatively low compared to the WHO indicator standard for leprosy program monitoring (10%).4 However, WHO reported that leprosy among children in Indonesia is the highest in southeast Asia region (11.40%) in 2008.11 This discrepancy in number may reflect a success in the leprosy control program in the urban cities, which probably have not reached the remote parts of Indonesia.

Clinical Characteristics

WHO has introduced a guideline aimed at classifying leprosy cases into PB and the more highly transmissible MB type.14,5 The majority among the patients in our center is MB type (80%), and occurs mostly in productive age (36%) of all the MB-type leprosy patients. This is similar to the data from WHO, in which Indonesia MB type of leprosy accounts for 82.15% on 2008.11 This condition may illustrate the magnitude of the transmission risk among the Indonesian population.

Since this study were conducted in referral center, which by nature receives patients with atypical symptoms, as well as those with complications (reactions and disabilities), at first we were predicting the number of MB type leprosy, children, disability, and reaction that occurs among our patients is higher than that of Indonesia. On the contrary, we found lower prevalence of grade II disabilities in comparison to the neighboring cities, where as the prevalence in children and number of MB cases are lower than that of WHO finding in Indonesia.7,11,12

Another problem lies on the type of leprosy suffered by the children. Most of our children patients suffered from MB type, contradictory to those reported in the Brazilian population, in which the majority of the children suffered from PB type.10 MB type leprosy requires more attention in diagnosis and management. It is highly transmissible and may pose difficulties in detection as the clinical symptoms are usually less typical than that of PB-type leprosy.1,4

Acute leprosy reactions, both RR and ENL reaction, occurs mostly in the male patient of productive age between 25-44 years old. Most reactions in our study were RR, which account for 16.5% of all cases. A study by Penna, et al10 found a statistically significant association between leprosy reaction and the increase in bacillary index (BI). Reactions were more prevalent in group classified as multibacillary, given that the multibacillary forms are immunologically more unstable. Therefore, the number of reaction in our study is following the magnitude of MB patients in our study.

Another problem is that the disturbance in occupation occurs among adult male patients with reaction. In female patients, leprosy reactions affect their role in tending the family and houseworks. In children, reactions can distract their education and social life.13 Leprosy reaction may also cause acute neuritis, which could lead to permanent disability. For this reason, early diagnosis and prompt treatment of any leprosy reactions are important.

Finding of leprosy disabilities at the time of diagnosis may indicate that diagnosis is established late in the course of the disease, as the disease tend to have a late development and suggest inefficacy of leprosy control programme.14 In our study, the number of grade II disabilities was 8.9%, exceeding the 5% disability benchmark set by the WHO. The
disabilities reported in other centers in Indonesia were more inferior, Bandung 15.87%,\textsuperscript{7} and Surabaya 25.4%.\textsuperscript{12}

Most disabilities in our study occur among MB-type male patients, similar to that reported by Whittington, et al.\textsuperscript{3} On the contrary, Ghimire, et al.\textsuperscript{16} observed more disabilities occurring in female housewives who actively perform house chores. Whittington\textsuperscript{15} also found that problem in participation were significantly higher for women than men.

Severe disabilities were rarely found in children. We observed 0.6% grade-II disability in children below 5 years old. This number is lower to that reported in neighboring city, Surabaya, 2.2%.\textsuperscript{12} This may be explained by the fact that our study run in the capital region, where the quality of service provided may be more satisfactory than that of our neighboring cities, since the proportion of children assessed for disability at time of diagnosis is an indicator of the quality of service provided.

Leprosy in children under five can be potentially incapacitating due to its very early onset and higher risk of deformities. However, severe disabilities are uncommon in children. Permanent disability in children is devastating as the social stigma may severely affects their childhood social life and psychological development.\textsuperscript{17}

Contrary to a former study by Imbriba, et al.,\textsuperscript{16} our study found that MB is suffered by many children. This can also contribute to the finding of disability in children which is found in our study. This highly transmissible form that is suffered by most of the children also justify the main concern to stop to chain of infection among children.

**Conclusion**

The main principle of leprosy control is by early detection of new cases and immediate treatment with MDT to prevent disease transmission.\textsuperscript{19} This principle is crucial to be implemented in leprosy-endemic countries including Indonesia.\textsuperscript{6}

Our study represents a single center experience on leprosy diagnosis and management. The Cipto Mangunkusumo hospital is the national tertiary referral center where most leprosy patients with disabilities and complications are usually referred to. For this reason, the demographics and clinical characteristics presented in this study may provide a general picture on the condition of leprosy cases treated in major provincial hospitals all over Indonesia.

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