Epidemiology of Asthma in Indonesia

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INTRODUCTION

The study of epidemiology of asthma in Indonesia is still rare. It is still in limited scope, either in a region,1,2 school, hospital or limited community.3-4 Those studies have not been standardized. Many diagnoses were based on questioner, clinical or secondary data. A study using one consistent standard and carried out in unison for entire region of Indonesia has not been reported. The author has reported some prevalence of various reports.6

This manuscript will discuss about the study in limited region or certain community, survey of asthma patients who had been treated by general practitioner, ISAAC study (International Study of Asthma and Allergies in Children) in Indonesia and the mortality rate based on the domestic health survey 1995.

The Stud in Utan Kayu District

The study about asthma in Indonesian community is still rare. Heru Sundaru et al1 carried out a cross-sectional, random-sampling study in citizens of Utan Kayu Selatan district, Jakarta Pusat. They had adult asthma prevalence as follows: if current prevalence of asthma based on repeated wheezing symptom, they had 8.9% value. But when the prevalence was based on the doctor’s diagnosis, they had 3.4%. But they used the cumulative prevalence, the value had became 10.8%, 7.6% and 3.8% respectively. (table 1).

Hence, comparing the asthma prevalence depends on the diagnosis criteria that were used and either the prevalence was cumulative or current. Cumulative prevalence is a proportion of patient who has had asthma for his all life long, while current prevalence is a proportion of current patient who had asthma (in last 1 year).

The different prevalence was based on symptoms and doctor’s diagnosis was because there were some patients who had not been diagnosed by the doctor and some of patients regarded their asthma as mild asthma so that they felt that it was not necessary to see the doctor and they felt good enough by taking the anti-asthma drug from the drug-stall or having some traditional drugs.

From 473 participants, by physical examination; we found 6 patients with wheezing symptom. By spirometer examination, all of those patients were included in 9 participants who had respiratory tract disorders. One patient indicated reversibility by aerosol bronchodilator.

Table 1. The Asthma Prevalence Based on Repeated Wheezing Symptom, Dyspnea Accompanied by Wheezing and The Doctor’s Diagnosis

<table>
<thead>
<tr>
<th></th>
<th>Current prevalence</th>
<th>Cumulative prevalence</th>
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<tbody>
<tr>
<td>Repeated wheezing</td>
<td>8.9%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Dyspnea and wheezing</td>
<td>6.91%</td>
<td>7.61%</td>
</tr>
<tr>
<td>The doctor’s diagnosis</td>
<td>3.4%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

The Asthma Study in Limited Community

While the population that had been studied by the author were adult patients, then at the same time and the same region, Siregar et al2 carried out a study in children population; they had the prevalence of child asthma by 6.99%. Soemantri and Dahlan3 in Bandung had 6.6% asthma prevalence in 381 medical and nursery students. Datau, et al4 in Manado had 6.53% asthma prevalence in medical students, while Konthen5 had 4.3% prevalence in students at Singaraja, Bali (table2).

The Asthma Study in Hospital

In order to describe the pattern of adult asthma patient in hospital, we will describe the data of adult asthma patients who have had treatment at the Allergy Outpatient Clinic, Department of Internal Medicine, Cipto Mangunkusumo Hospital; Jakarta and in the hospital care unit in The Allergy Outpatient Clinic.

Wasis Santoso7 studied the allergic patients who had
In Hospital Care Unit

We discuss about asthma patient who had been hospitalized because of the asthmatic status. Many asthma cases were manifested together with other diseases such as hepatic cirrhosis or diabetes mellitus, so that on the medical record, asthma was categorized as secondary diagnosis and the patient was not diagnosed as asthmatic status patient.

Soewarso DA\(^7\) reported hospitalized asthma cases in 5 years period (1975-1979) in Department of Internal Medicine, Cipto Mangunkusumo hospital. He found 208 cases (150 patients). Females were more than males (2:1) with mean age 37 years. The average hospital day care was 9 days. Most frequent cases were found in March, August and September.

Sukrawinata AS and Soernantri ES\(^10\) reported asthmatic status cases that had been hospitalized in Hasan Sadikin Hospital, Bandung in 5 year period (1980-1984). They found 137 cases (105 patients). The female and male ratio was 2:1, and 78.8% cases were 14-40 years old.

Heru S had data from the third-class ward, Department of Internal Medicine. In 1988, there were 46 patients (2.1%) with asthmatic status and 2171 hospitalized patients, while in 1989, 35 patients (1.69%) of 2085 hospitalized patients. The female to male ratio was 2:1. The hospitalization day care was about 8.83% days. The hospitalization day of male patient was about 11.6 days; it was longer than the female, which only had 7.4 days. This was because male patients were generally older (mean age 50.2 years) compared to the female, the mean age was 41.9 years and the male cases usually more severe.\(^6\)

The General Practitioner’s Survey

In 1992 a lot of questioners had been sent to 185 general practitioners in 17 cities in Indonesia. The asthma prevalence in the various areas is shown in Table 2.
percentage was ranging from 0.5% to 20% with average value of 4.80% from total patients that visited the general practitioner.\textsuperscript{11} It could be seen on table 3 that spirometer examination or peak flow expiration was still infrequently carried out. This survey then had been lengthened up for 238 doctors in 18 cities and involving 774 patients.\textsuperscript{12} We found that 9.3% of patients that had visited general practitioner severe asthma, 17.5% moderate asthma, and 73.4% with mild asthma. The severity criteria of asthma were based on the frequency of asthma symptoms and night awakening, in keeping with the International Consensus.\textsuperscript{13}

From 72 severe asthma patients, 37 (52%) had been hospitalized, while only 255 (27.34%) patients had been hospitalized of 568 patients.

### The ISAAC Study in Indonesia
In the end of 1995, some studies about asthma and allergy had been carried out in unison at 7 cities in Indonesia. These studies are part of asthma and allergy disease studies all over the world, which is using standardized format and the results are sent to the office of central ISAAC in New Zealand. In Indonesia, The Indonesian Association of Allergy-Immunology has been coordinating these studies. The temporary result (phase I), which is correlated to the asthma, may be seen on table 6. In the age group of 13-14 years, the prevalence was about 2.1% in Bandung and 9.0% in Ujung Pandang. The mean value of 5286 child population that had wheezing in the last 1 year was 4.2%.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Wheeze ever</th>
<th>Wheeze Past year</th>
<th>Asthma ever</th>
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<tbody>
<tr>
<td>Medan</td>
<td>249</td>
<td>30 (12%)</td>
<td>11 (4.4%)</td>
</tr>
<tr>
<td>Palembang</td>
<td>772</td>
<td>67 (8.7%)</td>
<td>27 (3.5%)</td>
</tr>
<tr>
<td>Jakarta</td>
<td>382</td>
<td>43 (11.3%)</td>
<td>22 (5.8%)</td>
</tr>
<tr>
<td>Bandung</td>
<td>2249</td>
<td>139 (6.2%)</td>
<td>47 (2.1%)</td>
</tr>
<tr>
<td>Bali</td>
<td>258</td>
<td>35 (13.6%)</td>
<td>19 (7.4%)</td>
</tr>
<tr>
<td>Ujung</td>
<td>799</td>
<td>137</td>
<td>72 (9.0%)</td>
</tr>
<tr>
<td>Manado</td>
<td>577</td>
<td>53 (9.2%)</td>
<td>24 (4.2%)</td>
</tr>
</tbody>
</table>

Total 5286 494 (9.3%) 222 (4.2%) 349 (6.6%)

### The Death Caused by Asthma in Domestic Health Survey (SKRT)
Up to now, the data collection about community cause of death through the domestic health survey has been still the main source of information, which describes the health condition in community. The data about cause of death from hospital has not represented the mortality condition in community yet, and only represent referral cases. While most of death cases; especially in rural areas have no diagnosis for the cause of death.

Therefore, in order to describe the general cause of death pattern according to the region, sex, age group and domicile, since 1980 The Department of Health has carried out the domestic health survey/survei kesehatan rumah tangga (SKRT) once every 3 years. The survey in 1995, which was a part of National Economy Census, involving about 207,000 households selected randomly from all over Indonesia region.

The domestic mortality rate in the last one-year has been reported to Department of Health, which
coordinated the domestic health survey. The department has trained general practitioners to do “verbal autopsy”, and then they will interview the household who had dead family. Verbal autopsy refers to the International Classification of Diseases (WHO), which is in 1995, they use the ICD-10 classification.

From the result of domestic health survey 1995, the proportion of death caused by respiratory system disease is 15.7%. It was at the third rank, after parasite infection and heart disease. Asthma and asthmatic status on ICD-10 had code of J45 and J46, as the main cause of death. It was found on 89 cases of 527 death cases caused by respiratory system (16.9%), but as direct cause of death, we found 59 cases of 293 deaths caused by respiratory system. Even the death incidence in male is higher (35 cases) than female (24 cases), but proportionally they are not extremely different, 21% compared to 18.3%. It is surprised that the death in cities was proportionally higher (28.3%) compared to rural areas (18%), and the death in Java-Bali province was also proportionally higher (23.6%), compared to other provinces (16.1%). There is still no explanation that may explain this phenomenon.14

Based on the pattern of direct cause of death according to the age group, we found that the highest mortality rate was found in older than 65 years, as seen on table 7. The mortality rate was highly increased after 45 years old, and after 65 years old, it increased several times compared to the 45 years old. This indicates that elderly asthma patient must have extra concern when he has any asthma attack. A study in Cardiff shows that the mean-age death caused by asthma is about 49 years old.15

REFERENCES