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PROFILE OF COMMUNITY ACQUIRED PNEUMONIA IN CHILDREN AT SOETOMO HOSPITAL SURABAYA IN 2007–2008

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ABSTRACT

Background: Community Acquired Pneumonia (CAP) is one of the most important health problem affecting children all over the world. Clinical findings, laboratory and radiological examination of CAP may largely vary from mild to severe. Objective: To report profile of CAP in children hospitalized at Soetomo Hospital Surabaya in 2007–2008 Methods: This research was a retrospective study. Data of children with primary diagnosis of CAP in 2007–2008 were obtained from medical records of the Department of Child Health Soetomo Hospital Surabaya. The diagnosis CAP was based on WHO criteria (pneumonia clinical syndrome). The clinical features of illness, laboratory and radiological examination were recorded and presented descriptively. Results: During the study period, 438 patients were diagnosed as CAP. More than half (83.4%) patients aged 3 months–3 year. Beside cough and tachypnea, most common symptom and signs were chest indrawing (76.2%) and fever (23.8%). Leucocytosis (39.6%). Bacteria was found in 8.2%. Accompanying diseases (i.e congenital heart disease, neurological and gastroenterological disorders) were found in 36.4%. One hundred fifty seven patients (35.8%) had malnutrition. Patchy infiltrate was found in 80.8% chest X-ray examination. Mortality was found in 4.3%. Conclusions: Community acquired pneumonia in children still count as a major problem at Soetomo Hospital Surabaya.

Key words: *children, community acquired pneumonia, clinical features of illness*

INTRODUCTION

Community Acquired Pneumonia (CAP) is one of the most important health problem affecting children all over the world. Clinical findings, laboratory and radiological examination of CAP may largely vary from mild to severe. The term "community-acquired pneumonia" (CAP) refers to pneumonia in a previously healthy person who acquired the infection outside a hospital.[a,2] The World Health Organization has defined pneumonia solely on the basis of clinical findings obtained by visual inspection and timing of the respiratory rate. The cause of CAP is often difficult to establish. The most effective methods are often invansive and cannot always be justified and serological diagnosis is too late to be of any therapeutic use. Despite the progress made in the diagnosis of pneumonia, it takes a few days to identify the causative microorganism in the blood or sputum samples and the etiology of half of all patients with CAP remains uncertain. Physicians need reliable data on the relative prevalence of different etiological agents in the patients area of residence, in addition to the clinical, laboratory and radiological findings in order to initiate antibiotic treatment empirically. The relative frequency of etiological agents varies among different geographical areas. The profile of community acquired pneumonia in children at Soetomo hospital Surabaya is not known The present study was undertaken to determine the profile of CAP in children hospitalized at Soetomo Hospital Surabaya in 2006.

MATERIAL AND METHODS

This research was a retrospective study. Data of children with diagnosis of CAP in January 2007–December 2008 were obtained from medical records of the Department of Child Health Soetomo Hospital Surabaya. The diagnosis CAP was based on WHO Criteria (Peumonia Clinical

Syndrome). The clinical features of illness, laboratory and radiological examination were recorded and presented descriptively. No patients had received the pneumococcal conjugate or polysaccharide vaccines. The radiologist assigned standardized and mutually exclusive diagnoses that included normal, patchy infiltrate, lobar consolidation and pleural effusion.

RESULTS

During the study period, 438 patients were diagnosed as CAP. More than half (83.4%) patients aged 3–36 month. Beside cough and tachypnea, most common symptom and signs were chest indrawing (76.2%), and fever (23.8%). Leucocytosis (39.6%). Bacteria was found in 8.2%. Accompanying diseases (i.e congenital heart disease, neurological and gastroenterological disorders) were found in 36.4%. One hundred fifty seven patients (35.8%) had malnutrition. Patchy infiltrate was found in 80.8% chest X-ray examination. Mortality was found in 4.3%.

Table 1. Profile of patients with CAP

Characteristic	No	Percentage
Sex, male	273	62.3
Age at diagnosis		
< 3 month	52	11.8
3–36 month	365	83.4
> 36 months	21	4.8
Clinical characteristic		
Chest indrawing	334	76.3
Fever	104	23.7
Nutritional status		
Well nourished	281	64.2
Moderate nourished	150	34.2
Severe nourished	7	1.6
Presence of accompanying Disease	120	52.9
Chest x-ray.		13.7
Normal	60	4.8
Lobar consolidation	21	0.7
Pleural effusion	3	80.8
Patchy infiltrat	354	

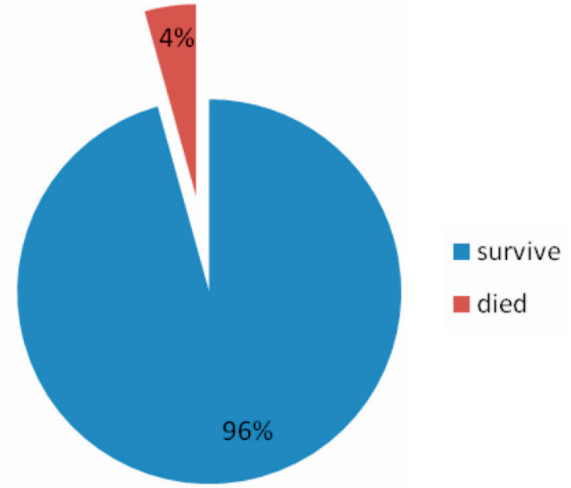

Figure 1. Mortality of CAP

DISCUSSION

During the study period, 438 patients were diagnosed as CAP. We showed that children with aged 3 months–3 year had the greatest degree of CAP, indicating that the infant have at most as many epidoses of pneumonia as older children. The clinical features all patients who diagnosed as CAP in this study were cough and tachypnea, based on the WHO criteria. The other clinical features that were most strongly associated with pneumonia were chest indrawing (76.3%), and fever (23.7%). Pneumonia should be suspected if tachypnea occurs in a patient younger than two years with a temperature higher than 38° C (100,4° F). Measurement of tachypnea requires a full one-minute count while the child is quiet. The World Health Organization's age-spesific criteria for tachypnea are the most widely used: a respiratory rate of more than 50 breaths per minute in infants two to 12 months of age; more than 40 breaths per minute in children one to five years of age; and more than 30 breaths per minute in children older than five years.[2]

Accompanying diseases (i.e congenital heart disease, neurological and gastroenterological disorders) were found in 36.4%. One hundred fifty seven patients (35.8%) had malnutrition. Patchy infiltrate was found in 80.8% chest X-ray examination. Complications of CAP such as respiratory failure occurred in 8.8% cases and sepsis in 10.5%, leading to mortality of 4.3%. The mortality from pneumonia is high particularly in patients with associated co-morbid conditions. Severe CAP requiring intensive care unit (ICU) admission, spread of radiographic infiltrates and

previous treatment with immunosupressive drugs have all been associated a poor outcome.[3,4] The mortality in our study was 4.3%. Analysis with student t test, malnutrition (p = 0,036) and accompanying diseases (p = 0,029) have significant correlation with the mortality of CAP.

CONCLUSIONS

Community acquired pneumonia in children still count as a major problem at Soetomo Hospital Surabaya.

REFERENCES

1. Ostapchuk M, Roberts DM, Haddy R. Community–acquired pneumonia in infants and children. Am Fam Physisician 2004; 70: 899–908.
2. World Health Organization. Essential drugs and medicines policy. Drugs used in bacterial infections. Accesed online February 27, 2008, at: http://www.who.int/medicines/library/bacterial
3. Bansai S, Kashsyap, Pai LS and Goel A. Clinical and Bacteriological profile of community acquired pneumonia in shimia, Himachal Pradesh. Indian J Chest Dis Allied Sci 2004; 46: 17–22.
4. Lakhanpaul M, Atkinson M, Stephenson T. Community acquired pneumonia in children: a clinical update. Arch Dis Child Ed Pract 2004; 89: 29–34.
5. Palafox M, Guiscafré H, Reyes H, Muñoz O, Martinez H. Diagnostic value of tachypnoea in pneumonia defined radiologically. Arch. Dis. Child. 2000; 82: 41–5.
6. Vallès X, Marcos A, Pinart M, Piñer R, Marco, Mensa JM, *et al*. Hospitalized Community-Acquired Pneumoniae Due to Streptococcus Pneumonia: Has Resistance to Antibiotics decreased? Chest 2006; 130; 800–6.
7. Owell S, Kupronis BA, Zell ER, Stat M,Hay DKS. Mortality from pneumonia in children in the United Sstates 1939 through 1996..The New Engl J of Med 2008; 342: 1399–1407.
8. Hazir T, Yasir Bin Nisar, Qazi SA, Khan SF, Raza M, Zameer S, *et al.* Chest radiography in children aged 2-59 months diagnosed with non-severe pneumonia as defined by World Health Organization: descriptive multicentre study in Pakistan. BMJ 2006; 333: 629.
9. Victora CG, Fuchs SC, Flores JAC, Fonseca W, Kirkwood B. Risk Factors for Pneumonia Among Children in a Brazilian Metropolitan Area Pediatrics 1994; 93: 977–985.