CHILDREN WITH PNEUMONIA: FACTORS AFFECTING ANTIBIOTIC USAGE IN A TRANSITIONAL COUNTRY

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Rationale: The World Health Organization 2006 guideline recommends the use of antibiotics to all children who demonstrate clinical symptoms of pneumonia. This is in response to failure to identify the etiology and address the high mortality rate of pneumonia in young children. Objective: To describe the spectrum of clinical features of community-acquired pneumonia and to identify the factors that affect antibiotic usage in Thailand. Design: Prospectively recorded clinical details for two-month- to five-year-old children with possible pneumonia admitted at Chonburi Hospital (tertiary care hospital) between October 2006 and September 2007. Logistic regression analysis was performed for antibiotic usage. Results: A total of 276 children admitted with pneumonia were classified into three grades of severity according to WHO criteria: pneumonia, severe pneumonia, and very severe pneumonia, and they comprised 29.7%, 19.2%, and 51.1%, respectively. Their length of stay was 2.8, 3.0, and 4.3 days (p<0.05), respectively. Of the total, 175 children (63.4%) received antibiotics. Ampicillin administered intravenously was the most commonly used antibiotic in 57.7%. Other antibiotics were erythromycin administered orally in 23.4%, cefotaxime administered intravenously in 13.1%, and other antibiotics in 5.8%. The treatment success was 100% without complication in the pneumonia and severe pneumonia group, while it was 95.7% in the very severe pneumonia group (failure due to respiratory failure=4 and readmission within 1 month=2). The antibiotic usage was not associated with the complication (p>0.05). For logistic regression analysis, the statistically significant variables for antibiotic usage were composed of chest x-ray (CXR) findings (OR= 4.8, CI 2.4-9.4), severity grading (OR=1.6, CI 1.1-2.2), and fever > 38°C (OR=2.0, CI 1.1-3.6). Respiratory rate, hypoxia and age of children were not correlated with antibiotic usage. The cost of CXR compared with the minimum cost of antibiotic therapy was US$3.9 vs. US$22.1 per case. Conclusions: The study illustrated that the CXR findings, severity grading and fever > 38°C are the factors that can assist in antibiotic administration. Although the WHO guideline recommends antibiotic usage based on clinical symptoms, using CXR for considering antibiotic usage is found to result in greater savings.