

2nd International Congress on Bacteriology & Infectious Diseases

November 17-19, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

The effect of lowering S. pneumoniae MIC: Penicillin/Ampicillin as treatment for pneumonia

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Background: Increasing penicillin resistance to *Streptococcus pneumoniae* in the late 1990's led to increased use of ceftriaxone and cefuroxime for children with community acquired pneumonia (CAP). In 2007-8, only 2% of patients with CAP at CHEO were prescribed ampicillin. In January 2008, the Clinical and Laboratory Standards Institute published revised penicillin susceptibility breakpoints for treatment of non-meningeal infections due to *S. pneumoniae*.

Methods: ICD-10 discharge codes for pneumonia were used to identify previously healthy patients with a diagnosis of CAP between January1, 2012 and December 31, 2013. Radiograph reports were reviewed to determine the presence of lobar infiltrates. Chart reviews identified patient characteristics, presence of complicated pneumonia and antimicrobial therapy.

Results: 235 children, 110 (46.8%) females, were admitted for CAP of which 212 (90%) had received routine immunizations and 21 (8.9%) reported allergies to penicillin. Overall, 208 (88.5%) reported cough, 204 (86.8%) fever, and 119 (50.9%) shortness of breath. In total, 173 (73.6%) had blood cultures; 7 were positive (5 *S. pneumoniae*, 2 Alpha-hemolytic Streptococcus). Thirty (12.8%) had drainage of empyema fluid (2 grew alpha-hemolytic Streptococcus and 1 *Streptococcus pyogenes*). During the hospitalization, 149 (63.4%) received ampicillin and 81 (34.5%) received cefuroxime. At discharge, 215 (91.5%) were given antimicrobials of which 164 (76.3%) received amoxicillin.

Conclusions: Empiric therapy of CAP is necessary since precise etiology is not available at the bedside. The act of lowering the MIC for non-meningeal infections due to *S. pneumoniae* was instrumental for clinicians to regain confidence in the use of penicillins as treatment for pneumonia.

Biography

Le Saux N is a Clinical Investigator at the Children's Hospital of Eastern Ontario (CHEO) Research Institute Associate Professor, Faculty of Medicine, University of Ottawa. She is an infectious diseases physician at CHEO where she is currently Medical Director of Infection Prevention and Control. She is also an active member of the examination board in Infectious Diseases at the Royal College of Physicians and Surgeons. She serves on many committees, including the Canadian Pediatric Society Infectious Diseases subcommittee and the Provincial Infectious Diseases Advisory Committee on Immunizations (PIDAC-I) of Ontario. She has published extensively in the areas of vaccines and clinical infectious diseases issues.

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