

NECROTIZING PNEUMONIA AMONG ITALIAN CHILDREN IN THE PNEUMOCOCCAL CONJUGATE VACCINE ERA

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Abstract

ABSTRACT Background: Necrotizing pneumonia (NP) is a severe complication of community-acquired pneumonia. The impact of 13-valent pneumococcal conjugate vaccine (PCV13) on the epidemiology of NP in children has not been formally assessed. Patients and methods: Medical records of children <18 years admitted with NP to two pediatric hospitals in Italy between 2005 through 2019 were retrospectively reviewed. The following 4 periods were defined: 2005-2010 (pre-PCV13), 2011-2013 (early post-PCV13), 2014-2016 (intermediate post-PCV13), and 2017-2019 (late post-PCV13). Results: Forty-three children (median age, 44 months) were included. Most of them (93%) were previously healthy. No differences in age, sex, season of admission, comorbidity, clinical presentation, or hospital course were identified between pre-PCV13 and post-PCV13 periods. A significant decrease in the rate of NP-associated hospitalizations was found between the early (1.5/1000 admissions/year) and the intermediate (0.35/1000 admissions/year) post-PCV13 period ($p=0.001$). *Streptococcus pneumoniae* was the most common agent detected in both periods (pre-PCV13: 11/18, 61%; post-PCV13: 13/25, 52%). Serotype 3 was the most common strain in both periods (pre-PCV13: 3/11, 27%; post-PCV13: 4/13, 31%). There were no changes in the bacterial etiology over time, but most patients with *Streptococcus pyogenes* or *Staphylococcus aureus* infection were admitted during the post-PCV13 period. Conclusions: The hospitalization rate for NP in children decreased a few years after the implementation of PCV13 immunization in Italy. However, an increased trend in admissions was found thereafter. *S. pneumoniae* was the most frequent causal agent in both pre- and post-PCV13 periods. Pneumococcal serotypes were mainly represented by strain 3.

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