

## Publication

A three-step diagnosis of pediatric pneumonia at the emergency department using clinical predictors, C-reactive protein, and pneumococcal PCR

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Recommendations for the management of community-acquired pneumonia (CAP) advocate that, in the absence of the clinical and laboratory findings typical of bacterial CAP, antibiotics are not required. However, the true value of the clinical and laboratory predictors of pediatric CAP still needs to be assessed. This prospective cohort study in three emergency departments enrolled 142 children with radiological pneumonia. Pneumonia with lung consolidation was the primary endpoint; complicated pneumonia (bacteremia, empyema, or pleural effusion) was the secondary endpoint. We showed that three clinical signs (unilateral hypoventilation, grunting, and absence of wheezing), elevated procalcitonin (PCT), C-reactive protein (CRP), negative nasopharyngeal viral PCR, or positive blood pneumococcal PCR (P-PCR) were significantly associated with both pneumonia with consolidation and complicated pneumonia. Children with negative clinical signs and low CRP values had a low probability of having pneumonia with consolidation (13%) or complicated pneumonia (6%). Associating the three clinical signs, CRP >80 mg/L and a positive P-PCR ruled in the diagnosis of complicated pneumonia with a positive predictive value of 75%.; A model incorporating clinical signs and laboratory markers can effectively assess the risk of having pneumonia. Children with negative clinical signs and low CRP are at a low risk of having pneumonia. For children with positive clinical signs and high CRP, a positive blood pneumococcal PCR can more accurately confirm the diagnosis of pneumonia. What is Known: •Distinguishing between bacterial and viral pneumonia in children is challenging. •Reducing the inappropriate use of antibiotics is a priority. What is New: •Children with negative clinical signs and low C-reactive protein (CRP) values have a low probability of having pneumonia. •Children with high CRP values can be tested using a pneumococcal PCR to rule in the diagnosis of pneumonia with a high positive predictive value.

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