PREDICTORS OF PERTUSSIS SEVERITY IN HOSPITALISED INFANTS AGED LESS THAN SIX MONTHS

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Aims: Determine predictors of pertussis severity in hospitalized infants (< 6 months).

Methods: A multicenter analytic study included 383 hospitalized infants (< 6 months) with laboratory-confirmed pertussis in Portugal between 2007 and 2012. Patients were divided in three groups according to disease severity: mild, moderate (apnoea, ALTE and/or hypoxemia) and severe (refractory hypoxemia, pneumonia, pulmonary hypertension, seizures and/or cardiogenic shock).

Results: The median age was two months (51.4% female; 61.7% non-vaccinated). There were 252 (66.3%) mild, 88 (23.2%) moderate and 40 (10.5%) severe infections. Of the later, nine patients had pulmonary hypertension, six developed sequelae and six died.

Young age (< 3 months), respiratory distress, crackles and pulmonary consolidation/atelectasis were associated with moderate/severe pertussis (p< 0.05). Prematurity only predicted severe disease (p< 0.05).

White blood cell count (WBC) on admission was significantly higher in moderate/severe compared to mild pertussis (median: 25050/µl vs. 13970/µl; p< 0.001). WBC on admission above 17000/µl was strongly associated with the occurrence of complications (age-adjusted OR=10.74; 95%CI: 5.99-19.27; sensitivity:76.0%; specificity:70.8%, positive likelihood ratio: 2.61).

Considering complicated pertussis, WBC peak was significantly higher in severe compared to moderate pertussis (median: 49290/µl vs. 26495/µl; p< 0.001). WBC peak above 50000/µl was a predictor of severe complications (age-adjusted OR=7.81; 95%CI: 3.05-19.97; sensitivity:50.0%; specificity:87.6%; positive likelihood ratio: 4.05).

Conclusions: WBC on admission is a good predictor of complicated pertussis. WBC peak predicts severe complications. Early and periodic WBC measurements identify pertussis patients at risk of complicated outcome and may allow prompt intervention, like exchange transfusion in those with hyperleukocytosis.