VALUE OF CHEST RADIOGRAPHIC PATTERN IN RSV DISEASE OF THE NEWBORN

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Background and aims: Respiratory syncytial virus (RSV) lower respiratory tract infection of the newborn can present itself as a pulmonary obstructive disease with hyperinflation, or as pneumonitis, a restrictive parenchymal disease with diffuse consolidation areas. The association between the chest radiographic pattern and the severity of the disease regarding ventilator support has been suggested before, but is not well established. Our aim is to evaluate if chest radiographic pattern (hyperinflation vs consolidation) in RSV infection can predict disease severity, need for mechanical ventilation and risk of complications.

Methods: We conducted a multicenter retrospective cohort study in term and preterm neonates (≤ 44 weeks corrected gestational age) with confirmed lower respiratory tract RSV infection, admitted to eight level III Neonatal Intensive Care Units from 2000 to 2010. Inferential analysis was performed using the Chi-square test of independence, with a confidence interval of 95%.

Results: A total of 259 neonates were enrolled. Patients with a consolidation pattern on the chest radiograph at admission (n=101) had greater need for: invasive mechanical ventilation (20.8% vs 8.2%; $p=.001$), non-invasive mechanical ventilation (28.7% vs. 20.9%; $p=.001$), supplemental oxygen (92.0% vs. 78.5%; $p=.004$) and higher ventilator settings. The risk of secondary bacterial pneumonia (42.0% vs. 13.3%; $p<.001$) was also increased. No statistically significant association was found with bronchopulmonary dysplasia, pneumothorax, subglottic stenosis or death.

Conclusion: In neonates with RSV infection of the lower respiratory tract the initial radiographic pattern of pneumonitis (consolidation) was associated with increased disease severity, need for mechanical ventilation and development of complications.