INFLAMMATORY MARKERS IN RSV LOWER RESPIRATORY TRACT INFECTIONS (RSV-LRTI)

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Background: Usefulness of serum inflammatory markers is being widely discussed in patients with pneumonia, while in cases of bronchiolitis they are not used as a reference method. The aim of this study was to assess the usefulness of white blood cells count (WBC), absolute neutrophil count (ANC), CRP and procalcitonin in children with RSV-LRTI.

Material and methods: 622 children (aged 8 days-121 months, median 2.9 months) were hospitalized due to RSV-LRTI in 2010-2018. The final diagnoses were: bronchiolitis- 72.8% (453/622), pneumonia- 15.8% (98/622), and bronchitis- 11.4% (71/622). A correlation between inflammatory markers and need for antibiotic treatment and pneumonia (positive chest X-ray) was performed.

Results: ROC analysis showed highest area under the curve (AUC) for predicting antibiotic treatment for procalcitonin=0.713 (95%CI: 0.653-0.773, p<0.001), followed by CRP=0.7 (95%CI: 0.653-0.746, p<0.001), ANC=0.665 (95%CI: 0.617-07.12, p<0.001), and WBC=0.568 (95%CI: 0.517-0.619, p=0.0092). Sensitivity, specificity, positive and negative predictive value (PPV, NPV) for cut-off points were as follows: for PCT (0.22 ng/mL): 36%, 96%, 86%, and 69%, for CRP (15.2 mg/L): 27%, 97%, 80%, and 78%, for ANC (6.45^10^3/uL): 25%, 94%, 64%, and 74%, for WBC (18.7*10^3/uL): 10%, 98%, 62%, and 72%. For predicting positive X-ray CRP showed AUC=0.664 (95%CI: 0.577-0.752, p=0.0002), and ANC AUC=0.599 (95%CI: 0.503-0.694, p=0.0438), while WBC and procalcitonin remained insignificant.

Conclusions: Inflammatory markers show promising values in assessing need for antibiotic treatment in patients with RSV-LRTI, while in assessing the risk of pneumonia only CRP and ANC are significant.