INFLUENZA-RELATED PNEUMONIA IN CHILDREN

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Background: Pneumonia is a frequent complication of influenza, yet there is lots of discrepancies in treatment guidelines. We aimed to assess a clinical course and laboratory parameters in hospitalized cases of influenza with pneumonia.

Material and methods: 84 children (aged 18 days-206 months, median 24.5months) hospitalized due to influenza were diagnosed with pneumonia in 4 consecutive seasons. Serum markers [white blood cells count(WBC), absolute neutrophil count(ANC), platelet count(PLT), mean platelet volume(MPV), CRP, procalcitonin)], as well as clinical characteristics (fever degree, duration of symptoms prior to hospitalization) were analyzed in terms of antibiotic treatment.

Results: 65/84(77%) children were treated with antibiotics. Median fever lasted longer in children without antibiotic treatment (6 vs. 3 days, $p<0.01$), but they required shorter hospital stay (5 vs. 9 days, $p<0.01$). In terms of predicting antibiotic treatment, ROC analysis showed highest area under the curve (AUC) for PLT=0.805 (95%CI:0.702-0.908, $p<0.01$), followed by WBC=0.72 (95%CI:0.594-0.846, $p<0.01$), procalcitonin=0.69 (95%CI:0.569-0.812, $p<0.01$), CRP=0.687 (95%CI:0.566-0.809, $p<0.01$), and ANC=0.655 (95%CI:0.522-0.789, $p=0.02$). Platelet cut-off values of $175*10^3$/uL showed 92.3% sensitivity, 42.1% specificity, 84.5% positive predictive value, and 61.5% negative predictive value, while for WBC ($8.5*10^3$/uL) it reached 69.2%, 78.9%, 91.8%, and 42.8%, respectively, for procalcitonin (0.35 ng/mL) 46%, 94.4%, 96.7%, and 33.3%, and for CRP (5.46 mg/L) 70.8%, 63.2%, 86.8%, and 38.7%, respectively.

Conclusions: Two patterns of pneumonia are seen in course of influenza pneumonia. The use of inflammatory markers, but also a platelet number may help distinguish between simple viral pneumonia, and a bacterial coinfection.