

CYTOKINE RESPONSE IN PEDIATRIC PATIENTS WITH PANDEMIC H1N1 INFLUENZA VIRUS INFECTION AND PNEUMONIA: COMPARISON WITH PEDIATRIC PNEUMONIA WITHOUT H1N1 INFECTION

Y.H. Kim¹, M.C. Hyun²

¹*Pediatrics, Keimyung University School of Medicine,* ²*Pediatrics, Kyungpook National University School of Medicine, Daegu, Republic of Korea*

Objectives: We investigated serum cytokine levels in pediatric patients with pandemic H1N1 virus infection-pneumonia and in pediatric patients with pneumonia but without H1N1 infection, and examined correlations between cytokine levels and clinical/laboratory findings.

Methods: Fifty-seven cases of infection by H1N1 virus were confirmed by RT-PCR and enrolled. Of these 57 cases, 26 had a severe H1N1 infection (group 1), and 31 had a mild H1N1 infection (group 2). Sera from 18 cases with pneumonia without H1N1 infection (group 3) were used as controls. The serum levels of 10 cytokines were determined by multiplex assay.

Results: The serum levels of IFN- α , IL-6, and IP-10 were significantly higher in H1N1

infected cases than in group 3, and levels of IL-6 and IP-10 were significantly higher in group 1 than in group 2. The level of IL-10 was significantly higher in groups 1 and 3 than in group 2. However, levels of IFN- α , TNF- α , and IL-17 were not significantly different between the three groups. IL-1 β , IL-4, and MIP-1 α were not detectable in most patients. IP-10 and IL-6 levels were found to show negative correlations with lymphocyte count and oxygen saturation.

Conclusions: We found higher levels of cytokines (IFN- α , IL-6, IP-10) of innate immunity than those of acquired immunity in pediatric H1N1 infection. Of the cytokines found to be increased in cases with a H1N1 infection, IP-10 and IL-6 were found to be correlated with disease severity (lymphopenia and hypoxia). IP-10 and IL-6 may be important markers in pediatric H1N1 infection.