
ENGLISH SPEAKING SECTION

CONCENTRATION OF INTERLEUKIN-8 IN SCHOOL-AGE CHILDREN WITH NON-HOSPITAL PNEUMONIA

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Introduction In community-acquired pneumonia (CAP), cytokines play a leading role in specific mediators of the immune response. Interleukin-8 is an inflammatory cytokine, a specialized mediator that regulates neutrophil chemotaxis, a product of macrophages and endothelial cells. Disruption of the production, secretion and reception of pro-inflammatory cytokines leads to deep defects in anti-infective protection and exacerbates the direct damaging effects of microorganisms and their toxins on lung tissue.

The purpose of the work In order to study the role of cytokines in the formation of the inflammatory process in pneumonia, their impact on the course of the disease, we determined the concentration of interleukin-8 (IL-8) in the serum of children with severe CAP.

Materials and methods The concentration of IL-8 was determined in 69 children with pneumonia aged 6 to 18 years of these, 31 children aged 6 to 12 years and 38 children aged 13 to 18 who were treated in the infectious department of older children in Sumy Children's Clinical Hospital. The comparison group consisted of 28 healthy children. The concentration of interleukins in the serum was determined by solid-phase enzyme-linked immunosorbent assay using test systems for enzyme-linked immunosorbent assay.

The study was conducted in the acute period of the disease (1-2 days of hospitalization) and in the period of stable improvement and discontinuation of antibacterial therapy (10-14 days). The results of studies obtained in children with CAP were compared with similar indicators of healthy children. Statistical methods were calculated using the Excel program.

Results Analysis of the obtained data showed that in the acute period of the disease the level of IL-8 was increased 4.5 times. Elevated levels of IL-8 were observed in 86.5% of sick children. In others, 12.5% of children, the level of IL-8 was significantly lower (14.4%), and in 7.1% of children the level of this cytokine did not differ from the control values, $p < 0,05$.

During the period of convalescence of the disease, the level of IL-8 decreased, but the rate of its reduction was lower. The concentration of the latter in the period of convalescence was 57.671 ± 0.626 pg / ml ($p < 0,05$), which is 2.3 times higher than in healthy children. The rate of reduction of IL-8 leads to a decrease in the activity of the inflammatory process. Elevated levels of proinflammatory interleukin may indicate the presence of children with CAP inflammatory process not only in the period of severe clinical manifestations, but also in their absence, in the period of convalescence.

Conclusions Such pronounced changes in IL-8 production in children with CAP during convalescence may indicate that the activity of the inflammatory process, even in the absence of clinical manifestations, continues to persist, especially in children with severe disease requiring further medical supervision. This allows us to consider elevated levels above interleukin-8 as one of the criteria for the activity of the inflammatory process.

Key words: disease, pneumonia, child, immunity, interleukins.