

FREQUENCY OF IMMUNODEFICIENCY CONDITIONS IN FREQUENTLY ILL CHILDREN

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Abstract: Recurrent or prolonged infections are major indicators of primary immunodeficiencies; although most frequently ill children have normal immune function, early detection of hidden immunodeficiencies is critical for improving patient outcomes. In this study, the frequency of immunodeficiency conditions was evaluated in 83 children aged 1 to 7 years with recurrent infections. Immunological screening included assessment of lymphocyte subpopulations, serum levels of IgA, IgM, IgG, IgE, and phagocytic activity of neutrophils. Immunodeficiency was identified in approximately 46–47% of the patients: about 12% of cases were classified as primary immunodeficiencies, and ~34–35% were secondary. The most common immune disturbances were selective IgA deficiency, T-cell function impairment, and defects in neutrophil phagocytic activity. The findings highlight the importance of immunological screening in frequently ill children for early diagnosis and timely intervention.

Keywords: frequently ill children; immunodeficiency; immunological screening; IgA deficiency; T-lymphocytes; phagocytosis.

Objective

To determine the frequency and nature of immunodeficiency conditions in frequently ill children aged 1 to 7 years.

Materials and Methods

The study included 83 children aged 1–7 years with recurrent respiratory infections. All patients underwent clinical and laboratory evaluation of immune status. Screening comprised a complete blood count with leukocyte differential, flow cytometric analysis of lymphocyte subpopulations (CD3+, CD4+, CD8+, etc.), measurement of serum immunoglobulins (IgA, IgM, IgG, IgE), and assessment of neutrophil phagocytic activity. The results were compared against age-specific reference values; additional immunological consultations and tests were conducted as necessary. Data analysis was descriptive, calculating the frequency of various immunological abnormalities.

Results

Immunodeficiency conditions were detected in approximately 46–47% of the examined children. Primary immunodeficiencies were diagnosed in around 12% of cases (mainly selective IgA deficiency), whereas 34–35% were identified as secondary immunodeficiencies related to chronic diseases or external factors. The most frequently observed immunological disturbances were selective IgA deficiency, reduced T-cell functional activity, and impaired neutrophil phagocytosis. Selective IgA deficiency is notably associated with recurrent infections of the respiratory and gastrointestinal tracts.

Conclusions

The frequency of immunodeficiency conditions among frequently ill children was high, being present in almost half of the examined patients. About 12% represented primary immunodeficiencies, and 34–35% were secondary. The most common disorders (IgA deficiency, T-cell functional impairment, phagocytic defects) require careful monitoring and intervention by pediatricians and immunologists. Early detection enables appropriate therapy and significantly improves prognosis and quality of life. These findings emphasize the necessity of including immunological screening in the evaluation of frequently ill children.

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