

SERUM ZINC IN BRONCHOOBSTRUCTIVE SYNDROME IN CHILDREN

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Zinc deficit induces different disturbances in the immune system. We aim at revealing the influence of serum zinc on the nature of bronchoobstructive syndrome in children. The following tasks are to be solved in our present trial:

- a) to examine serum zinc level in children with bronchoobstructive syndrome;
- b) to follow-up some immunologic parameters in these children;
- c) to establish a correlation between serum zinc and these parameters of immunity.

According to the main etiological reasons for bronchoobstruction in childhood two kinds of bronchoobstructive syndrome are differentiated:

- bronchoobstructive syndrome with infectious genesis;
- allergically caused bronchoobstructive syndrome.

Serum zinc level is examined in 25 hospitalized children. Of them, 13 are with infectious genesis of bronchoobstruction but 12 ones - with allergical one. Zinc levels are estimated during the first days of the disease by means of Perkin-Elmer atom-adsorption spectrophotometer - 3030B. A reference group of 10 healthy children is assessed as controls. The results are processed by the variation analysis by using of t-criterion of Student-Fisher's test. The following immunological parameters are examined: T-lymphocytes (active - Ta and total - Tt) - after Willeram's method; phagocytic activity (INT) - after Lokai's method; circulating immune complexes (CIC) - after Hashkova's method.

Boys dominate in the group of patients aged between 6 months and 10 years (16:9) against girls which corresponds with the fact about the more frequent occurrence of the disease in boys. Serum zinc values between 10-18 $\mu\text{mol/l}$ and between 12-20 $\mu\text{mol/l}$ are considered normal in children and adults, respectively, in the literature available. Mean serum zinc level is 12,97 $\mu\text{mol/l}$, or by 3 $\mu\text{mol/l}$ lower than that in the controls. This distribution is shown on fig. 1. Two tendencies can be noted. The values in children with infectious genesis of bronchoobstruction (these patients are with fever, accel-

erated ESR, lymphocytosis) are lower than these in children with allergically caused bronchoobstruction (these children show family predisposition towards allergical diseases, eosinophilia and no clinical and paraclinical data about an inflammatory process at the moment).

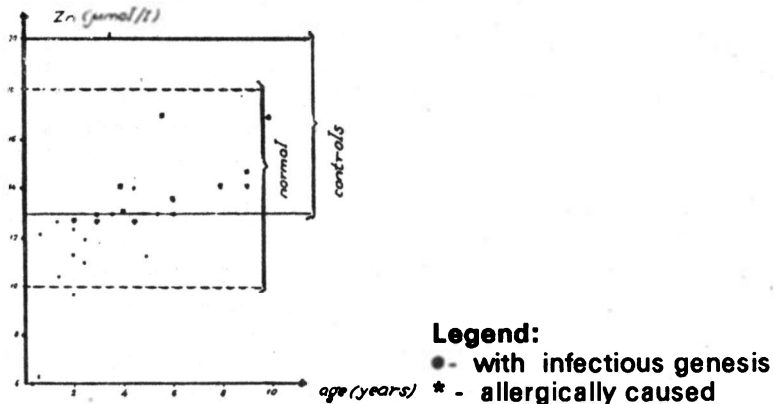


Fig. 1

Concerning the immunologic parameters, our own laboratory reference values are used as follows: for Ta - 15-35%, Tt - 45-75%; INT - 280-600 U, CIC - 8-30 U which are similar to literature data. Reduced phagocytic activity (below 260 U) is established in 12 cases (48%). Bronchoobstruction with infectious genesis is found in 9 of them in which serum zinc level is below 13 $\mu\text{mol/l}$. In 8 allergic children Ta is normal. Both Tt and CIC values are normal in 18 and 16 children, respectively. In about one half of the patients there are disorders of cellular immunity manifested by Ta and INT reduction and hypozincemia. These children are with bronchial infection as a reason of bronchoobstruction. It is evident that there is a considerable disturbance of the cellular immunity in chronic and recidive respiratory tract infections.

We can conclude that: 1) Serum zinc levels are significantly lower in bronchoobstructive syndrome in childhood; 2) Hypozincemia is more outlined in bronchial infection; 3) The reduction of parameters of cellular immunity is more significant in children with hypozincemia; 4) Hypozincemia is directly related to the immunologic status (mainly cellular immunity) as well as to the nature of bronchoobstructive syndrome in children.