

## **Predictors formation of allergic diseases in infants with gestational age less than 34 weeks**

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There is a hypothesis, that adverse exposures in fetal and early postnatal life might influence the formation of allergic diseases in later life. We retrospectively investigated the diagnostic and prognostic value of perinatal factors and indicators of BDNF, VEGF in serum in infants with gestational age less than of 34 weeks in the neonatal period as predictors formation of allergic diseases in adjusted age of 18 months.

Depending on the results obtained in the in adjusted age of 18 months identified 2 groups of children: 27 children (study group) with manifestations of allergic disease (atopic dermatitis, food allergy) and 15 children without signs of allergic inflammation.

In 44.5% of children with allergic disease mothers were older than 35 years ( $p < 0,05$ , Sp 98,5%, NPV 82,2%). During pregnancy, mothers of children study group often diagnosed chronic placental insufficiency (29.6% and absence of such a measure in the comparison group,  $p < 0,05$ , Sp 81,8%, NPV 84,3%), acute viral infection (55.6%), and 33.4% - fetal distress. 22.3% of children were born by cesarean section. Birth weight in children of the study group was significantly lower ( $1235,7 \pm 34,1$  g,  $p < 0,05$ , Sp 66,7%, NPV 88,0%). In the neonatal period in children study group more often were diagnosed congenital pneumonia (22.3%), respiratory distress syndrome (48.1%), bronchopulmonary dysplasia (33.4%),  $p > 0.05$ . Children from the study group more often after birth need of mechanical ventilation (22,3%,  $p < 0,05$ ), children of comparison - CPAP therapy (20%,  $p > 0.05$ ).

The value of BDNF and VEGF in the serum in the first week of life in children of all investigated groups did not differ ( $p > 0,05$ ).

In the late neonatal period (28 days) in children with allergic disease manifestations observed a significant increase BDNF ( $846,3 \pm 139,6$  vs.  $155,6 \pm 55,5$  pg/ml in the comparison group,  $p < 0,01$ , Sp 100%, Se 80%, NPV 88,2%) and VEGF ( $378,2 \pm 120,7$  vs.  $98,4 \pm 16,7$  pg/ml in the comparison group,  $p < 0,05$ , Sp 86,7%, Se 60%, NPV 76,5%).

Perinatal factors (maternal age over 35, placental insufficiency during pregnancy, birth weight less than 1500 g) and high level of BDNF and VEGF in the serum in the late neonatal period are predictors formation of allergic diseases in adjusted of 18 months.