Markers of inflammatory response of the intestine in newborns whose mothers received a probiotic during the 6 weeks before delivery

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Objective. To determine the concentration of the fecal eosinophil-derived neurotoxin (EDN) and fecal calprotectin as intestinal markers of inflammatory response in newborns whose mothers received a probiotic during the 6 weeks before delivery.

Methods. Pregnant women (n = 115), depending on the number of detected chronic diseases, were divided into two groups. The main group included women with a history of two or more chronic diseases, including the genitourinary sphere — 63/54.8%. The comparison group included pregnant women without a history of chronic diseases or having one chronic disease, except for the pathology of the urogenital sphere — 52/46.2%. Pregnant women of the main group with a preventive purpose for 6 weeks before delivery used a probiotic containing Bifidobacterium longum и Streptococcus thermophiles. The concentration of fecal EDN and fecal calprotectin was assayed using an ELISA method (Immundiagnostik, Bensheim, Germany and Calprest, manufactured by Nycomed).

Results. We found the following changes from the intestinal markers of inflammation in newborns depending on the use of probiotic by women before delivery: in children of the main group (mothers used probiotics) both markers were significantly lower than in comparison group (mothers not used probiotics).

Concentration of fecal EDN was 163.4 ± 58.2 vs 224.1 ± 83.4 ng/g (P < 0.001) and fecal calprotectin was 240.3 ± 78.6 vs 315.6 ± 101.2 mcg/g (P < 0.001).

Subsequent follow-up (during the first year of life) showed that in children of the main group were less frequently detected functional disorders of the gastrointestinal tract (15.8% vs 36.5%, P = 0.034) and allergic diseases (1.2% vs 5.8%, P = 0.056).

Conclusion. In newborns whose mothers received a probiotic during the 6 weeks before delivery, after birth levels of both markers of intestinal inflammation (fecal eosinophil-derived protein and fecal calprotectin) were significantly lower than in comparison group (children whose mothers not used probiotics).

In addition, in children of the main group in the first year of life were less than half detected such conditions as functional disorders of the gastrointestinal tract and manifestations of food allergies.