A STUDY OF PRENATAL, INTRANATAL, AND EARLY POSTNATAL RISK FACTORS FOR THE DEVELOPMENT OF BRONCHIAL ASTHMA IN CHILDREN

Zokirov Botirjon Qobiljon ugli

Department of Hospital Pediatrics,

Andijan State Medical Institute

Background: Bronchial asthma is one of the most common chronic diseases among children, and its prevalence is increasing worldwide, including in Uzbekistan. The disease has a significant negative impact on a child's quality of life, physical activity, and social adaptation. The development of bronchial asthma is the result of a complex interaction between genetic and environmental factors. The earliest periods of life—pregnancy (prenatal), childbirth (intranatal), and the first few months after birth (early postnatal)—are crucial for the formation and "programming" of the immune system. Negative factors during these periods can significantly increase the risk of developing asthma in the future. Therefore, identifying and studying these risk factors is of great scientific and practical importance for developing effective national strategies for disease prevention.

Objective: To conduct a comprehensive study of the significance and interrelationship of prenatal, intranatal, and early postnatal risk factors leading to the development of bronchial asthma in children.

Materials and Methods: The study was conducted using a "case-control" design. The main group (cases) consisted of 150 children aged 3 to 12 years with a confirmed diagnosis of "bronchial asthma." The control group included 150 healthy children matched for age and gender with no history of allergic diseases. Data were collected through interviews with parents using a specially designed questionnaire and a retrospective analysis of information from the child's ambulatory card and birth history. The questionnaire covered factors from the following periods: Prenatal period - maternal age, illnesses during pregnancy (ARI, toxicosis, anemia), harmful habits (smoking), medication use, hereditary predisposition. Intranatal period - mode of delivery (vaginal or cesarean section), birth asphyxia, preterm birth, birth weight. Early postnatal period - duration of breastfeeding, timing of the switch to formula, antibiotic use in the first year of life, exposure to tobacco smoke, presence of pets, respiratory infections (especially respiratory syncytial virus infection). Statistical analysis was performed using SPSS software, calculating the chi-square (χ^2) test and the Odds Ratio (OR).

Results: The analysis showed that the following risk factors were significantly more common in children with bronchial asthma compared to the control group: Prenatal factors - A family history of allergic diseases (OR=3.8), maternal smoking during pregnancy (OR=2.5), and severe toxicosis (OR=2.1). Intranatal factors - Delivery by Cesarean section (OR=2.9) and birth asphyxia (OR=2.3) significantly increased the risk of developing asthma. Early postnatal factors - Not being exclusively breastfed for the first 6 months (OR=3.2), receiving antibiotics more than twice in the first year of life (OR=2.7), the presence of smokers in the family (passive smoking) (OR=2.4), and early contact with domestic animals (OR=1.9) were identified as significant risk factors.

Discussion: The results reaffirm the multifactorial nature of bronchial asthma development. The practice of Cesarean section limits the infant's exposure to the beneficial microflora of the mother's

birth canal, which can disrupt the formation of the gut microbiome. This, in turn, can lead to improper development of the immune system (imbalance of Th1/Th2 cells), as widely documented in scientific literature. The unjustified use of antibiotics in the first year of life also negatively affects the gut microbiota, increasing the predisposition to allergic reactions. The harmful habits of the mother during pregnancy, particularly smoking, directly damage the development of fetal lung tissue, creating a foundation for airway hyperreactivity.

Conclusion: Prenatal (hereditary predisposition, maternal smoking), intranatal (Cesarean section), and early postnatal (insufficient breastfeeding, indiscriminate use of antibiotics, passive smoking) factors play a crucial role in the development of bronchial asthma in children. The identification of these risk factors and the implementation of preventive measures aimed at their prevention (promoting a healthy lifestyle among pregnant women, supporting natural childbirth, encouraging breastfeeding, rational use of antibiotics) should be a priority for primary healthcare institutions.

References:

1. Asher, M. I., Montefort, S., Björkstén, B., et al. (2006). Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three repeat multicountry cross-sectional surveys. The Lancet, 368(9537), 733–743.
2. Thavagnanam, S., Fleming, J., Bromley, A., Shields, M. D., & Cardwell, C. R. (2008). A meta-analysis of the association between Caesarean section and childhood asthma. Clinical & Experimental Allergy, 38(4), 629–633.
3. Strachan, D. P. (1989). Hay fever, hygiene, and household size. BMJ, 299(6710), 1259–1260.
4. Burke, H., Leonardi-Bee, J., Hashim, A., et al. (2012). Prenatal and passive smoke exposure and incidence of asthma and wheeze: systematic review and meta-analysis. Pediatrics, 129(4), 735–744.
5. Marra, F., Lynd, L., Coombes, M., et al. (2006). Does antibiotic exposure during infancy lead to development of asthma?: a systematic review and metaanalysis. Chest, 129(3), 610–618.
6. Gern, J. E. (2010). The ABCs of asthma, wheezing, and RSV. Journal of Allergy and Clinical Immunology, 126(1), 12-13.
7. Kull, I., Wickman, M., Lilja, G., Nordvall, S. L., & Pershagen, G. (2002). Breast feeding and allergic diseases in infants-a prospective birth cohort study. Archives of Disease in Childhood, 87(6), 478–481.