Polymorphismof EPOX1Gene in Children with an Acute Bronchitis with Wheezing Syndrome

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Background: The development of wheezing during acute bronchitis is recorded in 20-25% of cases in children. The formation of wheezing is determined by the anatomical organism’s features, as well as the nature and severity of the inflammatory process of the bronchial tree which is the result of the interaction of genetic, medical, biological, social factors.

Objective: To determine the informativity of the study of polymorphism of the gene of microsomal epidergylysis (EPOX1) to predict the development of wheezing in acute bronchitis in children.

Methods. The checkup was conducted on 54 children aged from 3 to 5 years with acute bronchitis. The group of 28 children (51.9%) with the acute form of bronchitis with wheezing manifestations was the most observed. The comparison group 26 children (48.1%) with acute bronchitis without wheezing.Determination of the genetic polymorphism of Tyr113His in the EPOX1 gene was carried out by the polymerase chain reaction.

Results. The diffusion of the single-nucleotide replacement genetic polymorphism of Tyr113His in the EPOX1 gene in children with acute bronchitis has been studied. It was established that the homozygous Tyr/Tyr genotype was determined in 53.8% of the examined children with acute bronchitis, the heterozygous genotype Tyr/His was determined in 42.6%, and the homozygous genotype His/His was determined in 3.7%. The gene polymorphism analysis revealed that children with wheezing syndrome 2.2 times more often had the genotype Tyr/Tyr, in the children of the comparison group ($p = 0.023$). It has been established that children with a "weakened" genotype Tyr/His and His/His disease have more favorable course.

Conclusion. The EPOX1 gene may be a candidate for the detection of a predisposition to the development of wheezing in children. The obtained data confirm the facts of the genetic determination of the propensity to character of the course of bronchopulmonary diseases in children.