GENETIC VARIANTS OF UNCONJUGATED HYPERBILIRUBINEMIA: GILBERT AND CRIGLER–NAJJAR SYNDROME

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Introduction. The causes of hyperbilirubinemia in children are multifactorial. The most common is infectious. However, among the non-infectious causes, a group of hereditary diseases stands out: Gilbert's syndrome (GS) and Crigler–Najjar (CN) [1,2].

Objectives. To study the syndromes of Gilbert and Crigler–Najjar, to find commonalities and differences between them.

Materials and methods: using the keywords «Gilbert syndrome», «Crigler–Najjar» and search engines «Google», review and analysis of the literature (articles and descriptions of clinical cases), describe the main symptoms, diagnosis and possible treatment options for GS and CN.

Results. These syndromes refer to unconjugated hyperbilirubinemias.

GS is a benign hyperbilirubinemia caused by a decrease in the functional activity of the liver enzyme uridine phosphate glucuronyltransferase, which leads to moderate jaundice. GS is most common among men, GS is most common on the African continent (30%), in contrast to Europe and the United States, where the prevalence is approximately 3–5%, but 20% of patients do not even suspect its presence, according to the type of inheritance: autosomal dominant, clinical picture: jaundice (more often manifested with prolonged fasting), diagnosis: direct DNA diagnosis of the UGT1A1 gene, but does not require specific treatment, only dieting.

Crigler–Najjar (CN) is a hereditary malignant unconjugated hyperbilirubinemia, characterized by: jaundice and damage to the nervous system. CN occurs in an equal ratio between men and women, is observed in people of different ethnic groups, more often in the population of the Asian region, the incidence of 1: 1 million newborns, is divided into 2 types: the first is autosomal recessive, but leads to death at an early age, the second type is autosomal dominant, appears during the newborn period, the clinical picture: yellowness of the sclera and skin, slowing of mental development (bilirubin encephalopathy), diagnostics: direct DNA diagnostics of the UGT1A1 gene, instrumental methods (duodenal probing, chromatographic analysis of bile, etc.), treatment: liver transplantation, phototherapy, blood transfusion.

Conclusions. GS — congenital non-hemolytic jaundice — is a hereditary disorder of the liver in the processing and withdrawal of bilirubin, a by-product of the natural breakdown of erythrocytes (hemolysis). This violation is manifested in a periodic increase in the level of bilirubin in the blood — hyperbilirubinemia. CN is a rare hereditary liver disease caused by a deficiency of the enzyme glucuronyltransferase (UGT1A1), which catalyzes the conjugation of bilirubin (mainly to bilirubin diglucuronide), making bilirubin water soluble.Common between GS and CN: refer to unconjugated hyperbilirubinemia, these syndromes are caused by mutations in the UGT1A1 gene locus, which encodes the bilirubin enzyme, genetic diagnosis, one of the main signs is hepatic jaundice. The main differences are: GS is not life threatening (it can only lead to impaired liver function and cholelithiasis), jaundice appears only in adolescence, CN, in addition to jaundice, leads to developmental delay, convulsions, etc., jaundice manifests itself in the neonatal period[3].

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