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# THE STRUCTURE OF NEONATAL HYPERBILIRUBINEMIA IN NEWBORNS

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**Annotation:** This scientific study is devoted to the study of the structure of neonatal hyperbilirubinemia in newborns. It was found that in the structure of prolonged neonatal jaundice, conjugation hyperbilirubinemia-late jaundice was the leading condition in 68 children (75.5%), however, in 15 (16%) children, jaundice was of a mixed nature.
**The purpose of the study**: to study the structure of neonatal jaundice in newborns.
**Material and methods**. 90 newborns who were in the departments of neonatal intensive care, pathology and physiology of newborns of the city maternity complex of the city of Bukhara were examined. All examined newborns were divided into 3 groups according to the time of occurrence and duration of jaundice: group 1 consisted of newborns with early jaundice. Group 2 included newborns with late jaundice. The remaining newborns with jaundice were assigned to group 3. To differentiate the groups, the following studies were performed in all newborns: fractional determination of bilirubin, Rh and group antibodies, monitoring of blood tests, Coombs test, determination, ALAT and ASAT, GGT, alkaline phosphatase, ultrasound of the liver and biliary tract.
**Results and discussion:** The results of the analyses showed that the structure of prolonged neonatal jaundice conjugation hyperbilirubinemia-late jaundice was the leading condition in 68 children (75.5%), however, in 15 (16%) children, jaundice was mixed.
Hemolytic hyperbilirubinemia was observed in 7 children (7.7%) of 2 rhesus and 5 cases of moderate-severe ABO incompatibility.
**Conclusion**. In the structure of prolonged neonatal jaundice, conjugation hyperbilirubinemia - late jaundice was the leading condition in the examined children.
**Key words:** Prematurity, conjugation, structure of neonatal hyperbilirubinemia.

***Relevance***, Jaundice is one of the most common metabolic disorders detected in the newborn period. Neonatal jaundice is most often of a physiological nature, is a transient condition and does not require treatment, at the same time it can be a symptom of a serious disease with damage to many organs, requiring timely diagnosis and therapy [1,2,3,4]. The occurrence of conjugation jaundice in premature and immature newborns with a burdened somatic background with the development of indirect hyperbilirubinemia is facilitated by endocrine pathology of the mother (presence of diabetes mellitus) and the child (congenital hypothyroidism), the presence of gastrointestinal pathology in the child (high intestinal obstruction, pylorostenosis) or massive drug therapy. [2,3,4] In recent years, there has been a significant increase in them [1,2,3,4]. As is known, the most dangerous complication of indirect

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bilirubinemia is the development of a neurotoxic effect leading to bilirubin encephalopathy with severe neurological complications [5,6]. Prolonged neonatal jaundice can be accompanied not only by increased nonimmune postnatal hemolysis and conjugation disorders, but also by phenomena of moderate but prolonged cholestasis, the cause of which is a discrepancy between the increased production of bile components and the limited ability of their excretion in newborns. Violations of bilirubin metabolism in this case are reversible, transient in nature.
Physiological jaundice occurs in the newborn period. The main clinical and laboratory criteria are:
• skin ictericity after 24-36 hours of life ;
• peak ictericity on 3-4 days of life, while the maximum concentration of total bilirubin in peripheral or venous blood: ≤256 mmol/l in full-term infants, ≤171 mmol/l in premature infants, increases due to an indirect fraction;
• ictericity decreases starting from 7-10 days of life, complete disappearance is observed on 14-21 days of life
• it does not affect the general condition, hepatosplenomegaly and anemia are not observed, the color of feces and urine do not change
• in umbilical cord blood at birth, bilirubin is less than 51 mmol/l, the hourly increase in the first day of life is less than 5.1 mmol/l/hour.
Jaundice of newborns can be divided into the following groups according to the time of occurrence and its duration: early jaundice (icterus praecox) - which arose in the first hours of life and ended with rapid hemolysis in the first 2-3 days of life. These are isoimmunization according to Rh and ABO, require immediate therapy, the tactics of their management have been worked out today and provide for preventive and curative phototherapy, the introduction of immunoglobulin, and in some unclear cases, replacement blood transfusion remains the only effective means of combating progressive hyperbilirubinemia [9]. late jaundice that occurs at the end of 2-3 days of life is called delayed. This group should include the "physiological" jaundice of newborns, which, unlike other conjugation jaundice, is not prolonged. other jaundice with a prolonged course of more than 7-10 days of life: congenital hemolytic anemia of hereditary origin, erythrocyte abnormalities. jaundice associated with impaired bilirubin excretion (spasm, stenosis, biliary tract atresia, etc.).
**The purpose of the study**: to study the structure of neonatal jaundice in newborns.
**Materials and methods**: 90 newborns were under our supervision, who were in the departments of neoreanimation, pathology and physiology of newborns of the urban maternity complex of the city of Bukhara. All examined newborns were divided into 3 groups according to the time of occurrence and duration of jaundice: group 1 consisted of newborns with early jaundice. Group 2 included newborns with late jaundice. The remaining newborns with jaundice were assigned to group 3. To differentiate the groups, the following studies were performed in all newborns: fractional determination of bilirubin, Rh and group antibodies, monitoring of blood tests, Coombs test, determination, ALAT and ASAT, GGT, alkaline phosphatase, ultrasound of the liver and biliary tract.
**The results and their discussions**. Of the examined 90 newborns, 44 newborns were born prematurely at gestation from 29-35 weeks, which amounted to 48.8%. The average weight of premature infants was 2217.5g±1.4; the average gestational age was 31.2 weeks ± 1.2. The remaining 56 full-term newborn babies were born at an average of 38.4 weeks of gestation, the average weight of which was 3105.4 g ± 1.9. 1-the group consisted of 7 (7.7%) full-term newborns with early jaundice. Group 2 consisted of 68 (75.5%) newborns with late jaundice.

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Of these, 40 (58%) are premature babies. 15 (16%) newborns with jaundice were assigned to group 3, of which 4 (26%) were premature babies. The average weight of these premature infants was 2210g±1.4.

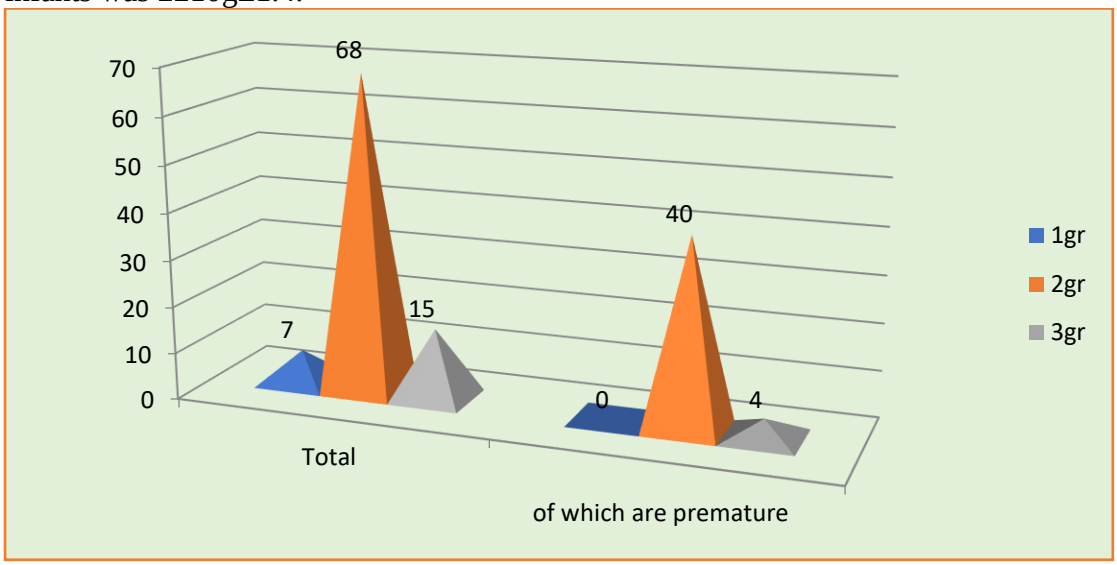


**Figure 1**. Composition of the studied groups with neonatal hyperbilirubinemia.

In the structure of prolonged neonatal jaundice, conjugation hyperbilirubinemia-late jaundice was the leading condition in 68 children (75.5%), however, jaundice was mixed in 15 (16%) children. Hemolytic hyperbilirubinemia was observed in 7 children (7.7%) of 2 rhesus and 5 cases of moderate-severe ABO incompatibility. In order to study the causal factors of hyperbilirubinemia in newborns, an analysis of the course of pregnancy and the nature of childbirth was carried out. It was found that 66% of births were delivered through the natural birth canal, 34% had cesarean section, 32% of pregnant women underwent labor stimulation, which could also serve as a prerequisite for the development of hyperbilirubinemia in newborns. When studying the anamnestic data of pregnant women, it was revealed: OAA (perinatal mortality, stillbirth, non-developing pregnancy, medical abortions, miscarriage) in 22 (24.4%) women, preeclampsia-22 (24.4%) cases, eclampsia -2 (2.2%) cases, premature discharge of amniotic fluid–24 (26.6%), threats of termination - in 16 women (17.7%), gestational hypertension in 18 women (20%), urinary tract infection in 19 women (21.1%), acute respiratory infections in 21 women (23%), pregnant women at risk of GBS in 15 (16.6%) women, polyhydramnios-8 (8.8%), meconeal waters- 9(10%), placental abruption in 4 cases (4.4%), SORP-15(16.6%).

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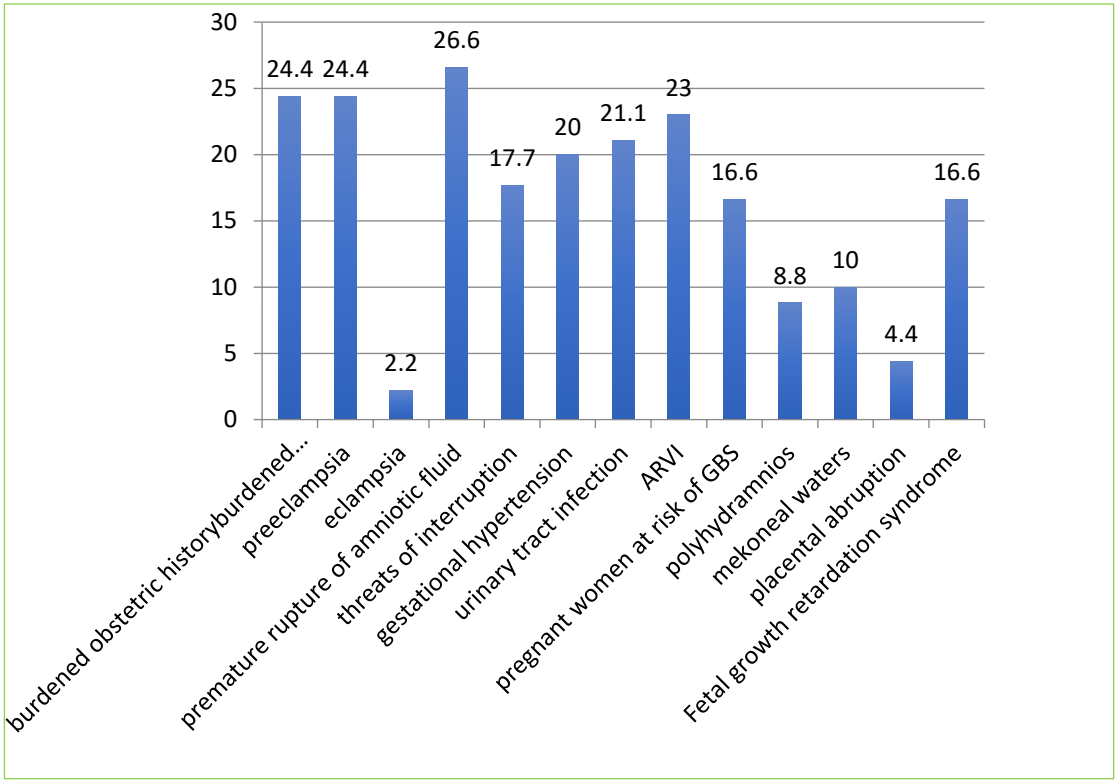


**Figure 2**. Risk factors for neonatal hyperbilirubinemia

**Conclusion**. Thus, neonatal jaundice of conjugation genesis occupies a leading place in the structure of neonatal jaundice, requires clinical monitoring and noninvasive approaches to monitoring bilirubin levels. In the structure of prolonged neonatal jaundice, conjugation hyperbilirubinemia -late jaundice was the leading condition in the examined children.

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