

Overview On Jaundic In Children: Relationship Between Jaundic And Blood Group, Anemia, Causes And Treatment Methods

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ABSTRACT

Background: Jaundice is a condition that makes the skin, body tissues and fluids yellowish in color. You often see the color on the skin or the white parts of the eyes. The yellow color is caused by the accumulation of bilirubin in the blood. Bilirubin is a pigment that leaks into the blood when red blood cells break down. This study aimed to identify jaundice and its relationship to the occurrence of jaundice in newborns with blood groups and its relationship to anemia, to study jaundice, to reveal its causes and what are the methods of diagnosis and treatment methods in all respects, and to clarify the extent of its spread. To the effect of jaundice on the health of the newborn and to know whether the effect of jaundice persists for advanced periods of the patient's life, the study reached a number of conclusions, the most important of which are: Anemia, yellowing of the skin and eyes, and an enlarged spleen are the symptoms of jaundice, a hereditary condition brought on by a genetic defect in the membrane of red blood cells. The red cells in hemolytic jaundice are less elastic, rounder, and more fragile than normal red cells. Red blood cells frequently become caught in constrictive blood vessels, such as the spleen, which causes them to degrade and result in anemia. An enlarged spleen results from red cell blockage of the spleen. This occurs when red blood cells release their hemoglobin. The heme fraction then produces bilirubin, and too much bilirubin causes gallstones to develop even in young children. Iron-rich red blood cells are also destroyed by excess iron.

Keywords: Jaundice, Blood Group, Anemia

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INTRODUCTION

Jaundice is a condition that makes the skin, body tissues and fluids yellowish in color. You often see the color on the skin or the white parts of the eyes. The yellow color is caused by the accumulation of bilirubin in the blood. Bilirubin is a pigment that leaks into the blood when red blood cells break down. Jaundice is

common in newborn babies. This happens because newborn babies are born with more red blood cells than they need. These extra blood cells break down and leak bilirubin into the blood. Adult jaundice is uncommon, however it is frequent in children, affecting an estimated 80% of them in the first week of life (Jahanshahifard et al., 2012).

Types of Hyperbilirubinemia:

Numerous types of bilirubinemia, Neonatal cases of jaundice, including three subtypes brought on by Rh factor incompatibility, ABO blood group incompatibility, and glucose-6-phosphate dehydrogenase (G6PD) insufficiency, have been documented. These include hemolytic jaundice, pathological jaundice, physiological jaundice, and jaundice brought on by nursing (Mishra et al., 2008).

Jaundice is affected by blood groups :

Rh hemolytic illness, ABO incompatibility, G-6-PD deficiency, and minor blood group incompatibility are some of the major causes of hemolytic jaundice. A baby born to a Rh-negative mother (and a Rh-positive father) needs to undergo a Direct Coombs' test (DCT) on the cord blood in addition to Rh typing. If a newborn is suspected of having Rh isoimmunization, a blood group should be determined to aid with early therapy, Rh typing, DCT, PCV, and serum bilirubin on cord blood. The first exchange transfusion should be preceded by the sending of a reticulocyte count. Beginning intensive phototherapy at birth and continuing it to a level that is 5 mg/dl below that required for exchange blood transfusions. A level more than 0.5% and 1% of birth weight (kg), respectively, can be used as a general guideline for phototherapy and exchange blood transfusion. (Gartner & Lee, 1999). Karl Lansteiner reported the detection of antibodies against the A and B antigens in the sera of his colleagues in 1901, along with the discovery of the ABO system 5, 6. People with blood group B have antibodies against the A antigen in their serum, whereas people with blood group A have antibodies against the B antigen. In contrast to those with AB cells, group O individuals' sera contain both anti-A and anti-B antibodies. Iso-antibodies 5, 7, and 8 refer to these substances. Pregnancies with infants in groups A, B, and AB where the

mother belongs to the O group can result in hemolytic disorders. According to reports, it is a crucial diagnostic in cases of infant anemia and jaundice, with really severe cases necessitating exchange blood transfusions (Bujandric & Grujic, 2016).

The relationship of jaundice to anemia :

Anemia is a condition that arises due to a decrease in the number of hemoglobin-containing red blood cells (RBCs). An iron-containing transport, through the bloodstream, The body receives oxygen from the lungs through a molecule called hemoglobin. Anemia can also be caused by a decrease in the capacity of hemoglobin molecules to bind oxygen, in addition to the reduction of RBCs. In this case, there may or may not be normal hemoglobin concentration in the blood (Neufeld et al., 2019). As a result of red blood cells degenerating because of their fragility and increased sensitivity to damage, and the spleen enlarging as a result, the genetic reason is the primary factor causing hemolytic jaundice. A flaw in the protein responsible for the red blood cell membrane is what causes hemolytic jaundice (He et al., 2017). The most common form of anemia is the iron deficiency anemia (IDA) which is caused by the premature or excessive destruction of red blood cells before they can be properly replete. It is worth noting that iron deficiency may not always lead to anemic conditions, and the average hemoglobin concentration for healthy individuals differs across race, gender and age. For example, amongst adult individuals characterized by darkly pigmented skin, the average concentration is 8 g/l lower than that of other ethnic groups. Almost all studies about anemia consider four focus groups: infants, children, non-pregnant women and pregnant women (Cappellini et al., 2020).

What transpires over time may lead to an accumulation of bilirubin in the body, which

prompts the patient to experience jaundice and a yellowing of the eye whites (Outlaw et al., 2020). There are studies that have shown that high iron For pregnant women who take nutritional supplements Standardized, rate of physiological jaundice in newborns, and has the results have also appeared in several case studies of iron status the caterpillar was higher than him. Excess iron supplements that you may find from iron stores in fetal (Rao & Georgieff, 2007).

What are the symptoms that appear when people with jaundice?

Here are the main symptoms of jaundice (Mariakakis et al., 2017):

1. Extreme weakness
2. Headache and fever
3. Loss of appetite
4. Severe constipation
5. Nausea
6. Yellowing of the eyes, tongue and skin Walpole
7. Mild pain in the liver area.

Causes of Auses Jaundice :

Increased production of bilirubin in the blood :

Jaundice is mostly brought on by too much bilirubin in the blood. Old, worn-out red blood cells are naturally broken down to create bilirubin, which gives bile its characteristic yellow hue. Red blood cell production and apoptosis are both boosted in an infant's first few days of life because of this, infants emit more bilirubin than adults do. Bilirubin is typically removed from the bloodstream by the liver and excreted through the digestive system. An immature infant's liver frequently struggles to eliminate bilirubin quickly enough, which

causes bilirubin levels to rise. Physiological jaundice is the term used to describe the jaundice that results from these infants' typical circumstances (normal and unsatisfactory), and it always appears on the second or third day after birth (Omekwe et al., 2014) .

Other reasons

Jaundice in infants can result from an underlying disorder. When this occurs, jaundice frequently manifests considerably earlier or later than the typical baby jaundice. Diseases and medical conditions that cause jaundice include:

- ❖ internal bleeding (hemorrhage)
- ❖ An infection in the baby's blood (sepsis)
- ❖ Other bacterial or viral infection
- ❖ Blood compatibility issues between the mother and the child
- ❖ Liver dysfunction
- ❖ Biliary atresia, a disease in which a child's bile ducts become blocked or scarred
- ❖ Enzyme deficiency
- ❖ An imbalance in the child's red blood cells, which leads to their rapid breakdown.

Risk factors

The main risk factors for developing jaundice, in particular, are severe jaundice, which may be problematic, including: birth. A baby born before the 38th week of pregnancy may not be able to process bilirubin as quickly as a baby born on time. Because of this, less bilirubin is passed on through the stool.

Jaundice Treatment

The underlying cause of the jaundice and any potential complications will determine the course of treatment. Once a diagnosis has been made, treatment can be focused on treating that specific ailment, which may or may not necessitate hospitalization. Expectant

management (watchful waiting) at home combined with rest may be used as a form of treatment. It can be necessary to receive medical care that includes intravenous fluids, drugs, antibiotics, or blood transfusions. If a drug or poison is the culprit, it needs to be stopped. It may be necessary to administer exchange blood transfusions or expose the infant to special colored lights (phototherapy) in some newborn jaundice situations to lower increased bilirubin levels. Surgical intervention might be necessary.

Medical Treatment

The medical condition causing jaundice, together with its symptoms and complications, affects the type of treatment that is given. Following are some possible treatments: (Bratlid et al., 2011):

- ❖ supportive care,
- ❖ IV fluids in cases of dehydration,
- ❖ medications for nausea/vomiting and pain,
- ❖ antibiotics,
- ❖ antiviral medications,
- ❖ blood transfusions,
- ❖ steroids,

- ❖ chemotherapy/radiation therapy,
- ❖ phototherapy (newborns).

CONCLUSION:

Because neonates have more severe hyperbilirubinemia, it is important for parents and medical professionals to take precautions in order to correctly detect and treat the condition. In order to educate women about neonatal jaundice, the government and public health organizations should host seminars, workshops, and training sessions. Medical researchers should look for novel therapies and preventative strategies that can heal infants more quickly and have no adverse effects. Before getting married, partners should have their ABO blood types and Rh factor tested. Avoid getting married to someone you know. It is generally known that phototherapy can lower serum bilirubin levels and that the skin is where the reaction that causes this effect takes place. Because shaded skin areas stay icteric while exposed skin areas get blanched, the use of transcutaneous bilirubin measurement during phototherapy has been questioned.

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