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Research Article

A CASE STUDY ON MANAGEMENT OF NEONATAL JAUNDICE - A NURSE'S PERSPECTIVE

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Abstract

Neonatal jaundice is one of the most common problems encountered by paediatricians. Up to 60% of term infants may have clinical jaundice in the first days of life, but few have significant underlying disease. The challenge for the clinician is to determine when clinical jaundice needs further evaluation. Jaundice in the new-born period can be associated with serious illnesses such as hematologic disorders, metabolic diseases, endocrine diseases, infections, and diseases of the liver or the biliary tree. It is critical to know when to pursue an evaluation and to know what tests to order. Almost all jaundice in the first days of life is due to indirect bilirubin and is a physiologic self-resolving problem. Physiologic hyperbilirubinemia develops as a combination of increased bilirubin production, decreased ability to eliminate bilirubin, and a significant enterohepatic circulation of bilirubin. On a per-kilogram basis, the average new-born produces almost 2.5 times as much bilirubin as an adult. At times, the paediatrician is presented with a neonate who warrants further analysis, thus the need to approach the problem expeditiously.

Keywords: Hyperbilirubinemia, New- Born, Patient-Family Education.

INTRODUCTION

Neonatal jaundice or neonatal hyperbilirubinemia results from elevated total serum bilirubin (TSB) and clinically manifests yellowish discoloration of the skin, sclera, and mucous membrane. In most cases, it is a mild, transient, and self-limiting condition and is referred to as "physiological Jaundice." However, it is imperative to distinguish this from a more severe form called "pathological Jaundice." Newborns produce more bilirubin than adults dobecause of greater production and faster breakdown of red blood cells in the first few days of life. Normally, the liver filters bilirubin from the bloodstream and releases it into the intestinal tract. A newborn's immature liver often can't remove bilirubin quickly enough, causing an excess of bilirubin. Jaundice due to these normal newborn conditions is called physiological jaundice, and it typically appears on the second or third day of life. In recent years it has become apparent that the modulation of bilirubin metabolism and the determination of whether STB concentrations remain within the physiologic range or increase to potentially harmful concentrations lie within genetic control.5-10 Indeed, one of the most important advances in our understanding of the genomics of bilirubin metabolism was the elucidation of the UGT1A1 gene encoding the bilirubin-conjugating enzyme, uridine diphosphate-glucuronosyltransferase 1A1 (UGT1A1). It is now apparent that several genes control both the production and elimination of bilirubin and that polymorphisms or mutations of these genes, sometimes acting in combination, have the potential to cause extreme hyperbilirubinemia. Additionally, genetically inherited diseases due to mutations of genes not normally involved in the physiology of bilirubin are associated with increased hemolysis, sometimes to a marked degree. Select hereditary conditions with the potential to modulate bilirubin metabolism.

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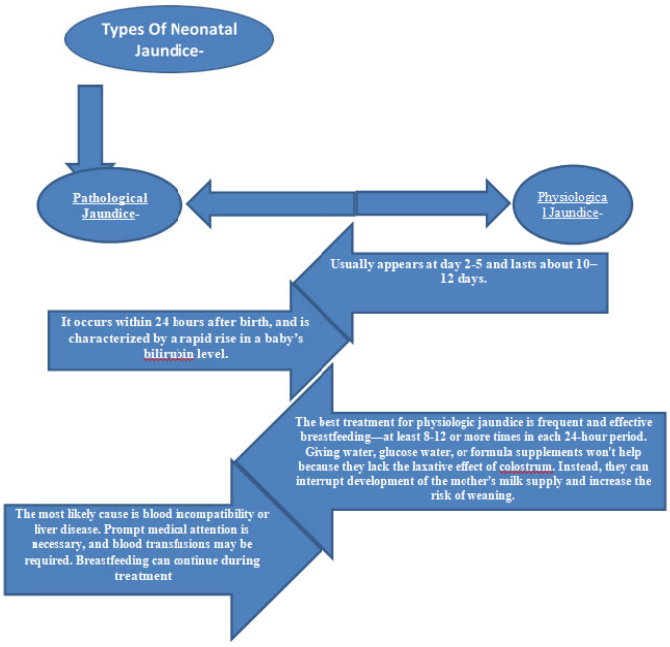
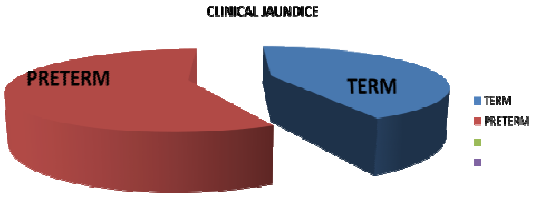


Approximately 60% of term and 80% of preterm newborns develop clinical jaundice in the first week after birth.



CASE DESCRIPTION

A 3 days female baby born in our hospital (Apollomedics Lucknow) through Normal Vaginal Delivery (NVD), on 3rd day the baby had complains of yellowish discolorations of

sclera and skin, With Transcutaneous Bilirubin 14.7mg/dl (the phototherapy range for that baby is more than 13mg/dl). Doctor advised for double- surface of phototherapy with covering eye and genital. Second hourly feed (breast feeding and palladai feed on demand) with intake-output monitoring has been advised, after 24 hours the total serum bilirubin test was sent for investigation, which was 4.6mg/dl. Parents were very anxious as this was their first baby and they were not having enough awareness about neonatal jaundice, mother had separation anxiety related to admission in Neonatal Intensive Care Unit (NICU). The assigned nurse did daily patient- family education (PFE), so that the parents were stress free and have enough knowledge on the disease condition. On timely basis the nurses who were assigned to the baby, updated the condition of the baby as well as the progress. PFE awareness on other causes of neonatal jaundice are – An underlying disorder may cause infant jaundice. In these cases, jaundice often appears much earlier or much later than does the more common form of infant jaundice.

Disease or conditions that can cause jaundice include

- Internal bleeding (hemorrhage)
- An infection in your baby's blood (sepsis)
- Other viral or bacterial infections
- An incompatibility between the mother's blood and the baby's blood
- A liver malfunction
- Biliary atresia a condition in which the baby's bile ducts are blocked or scarred
- An enzyme deficiency
- An abnormality of your baby's red blood cells that causes them to break down rapidly.

Risk Factors

Premature birth

A baby born before 38 weeks of gestation may not be able to process bilirubin as quickly as full-term babies do. Premature babies also may feed less and have fewer bowel movements, resulting in less bilirubin eliminated through stool.

Significant bruising during birth

Newborns who become bruised during delivery gets bruises from the delivery may have higher levels of bilirubin from the breakdown of more red blood cells.

Blood type

If the mother's blood type is different from her baby's, the baby may have received antibodies through the placenta that cause abnormally rapid breakdown of red blood cells.

Breast-feeding

If the mother's blood type is different from her baby's, the baby may have received antibodies through the placenta that cause abnormally rapid breakdown of red blood cells.

The main symptom of neonatal jaundice is a yellowing of the skin and other parts of the body. As the condition progresses, the whites of the eyes may take on a yellow tinge. Symptoms will typically begin in the region of the face and gradually progress down the body to the legs.
Fever

Diagnosis

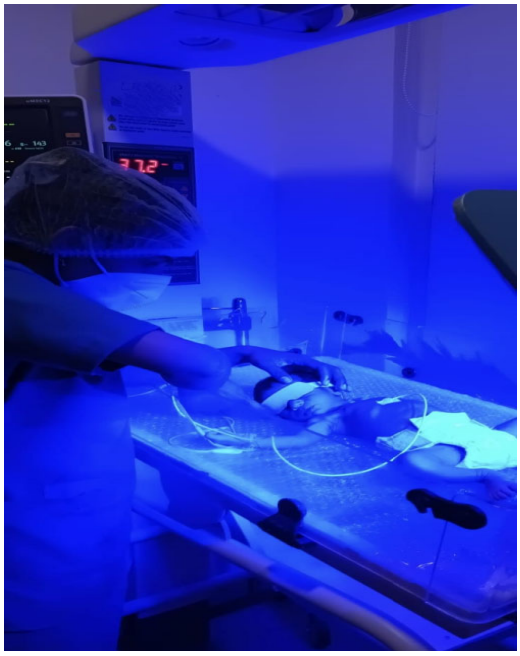
Babies are checked for neonatal jaundice as part of the routine medical examination which typically takes place within 72 hours of birth. As the condition can take up to one week to appear, the baby should also be checked frequently after being taken home. Bilirubin test- If jaundice is suspected, a test to measure the levels of bilirubin in the blood will usually be carried out. This will either be done using an instrument known as a bilirubin meter, which uses light to test for bilirubin, or through a blood test. A blood test is generally only used if symptoms appear within 24 hours of birth or if the results from the bilirubin meter show particularly high levels.

Treatment

Treatment for neonatal jaundice is aimed at reducing the levels of bilirubin in the blood. In mild cases, no treatment at all may be required other than monitoring ng the child, making sure that the jaundice improves.

In other cases, treatment may be necessary and options include:

Phototherapy- Phototherapy is the most common treatment option for babies with jaundice and is in the majority of cases the only treatment method that is necessary for recovery. Phototherapy involves exposing the baby's skin to special blue light, which is able to break down bilirubin into a harmless substance. For the best results, the baby should be exposed to the light for as long as possible. This will usually take place at the hospital, but in some cases may be possible to do it at home. Generally, phototherapy is very safe, though the infant's eyes will need to be protected from the light, and temporary side-effects such as dehydration, a skin rash and loose stool may result. These are all treatable.



Intravenous immunoglobulins

- Intravenous immunoglobulin (IVIG) treatment is used for the treatment of blood group, Rhesus (Rh), ABO and other blood group incompatibilities. It is believed to reduce the need for exchange transfusions.
- Intravenous immunoglobulin therapy may not be very helpful for babies that are already immunized, but it has been shown to be beneficial to babies that would otherwise need an exchange transfusion. The reasons behind this are not completely understood. In some cases, it may be necessary to try IVIG preparations from various manufacturers if the initial treatment does not work.
- Generally, IVIG preparations are infused intravenously over a period of a few hours. The process can be repeated, and combined with phototherapy.

Exchange transfusion

- In emergency situations, when very high levels of bilirubin need to be reduced quickly, an exchange transfusion may be required. This is a procedure in which some of the baby's blood is replaced with donor blood. This can be effective in bringing down bilirubin levels quickly.

Complication

In the majority of cases, neonatal jaundice is a harmless condition that leads to no serious complications.

However, rare complication of neonatal jaundice is (acute) bilirubin encephalopathy, is likely to affects premature babies. Signs of bilirubin encephalopathy may include:

- Severe jaundice within the first few days of birth
- Difficulty feeding
- High-pitched cry
- Arched neck or back.

Nursing management

- Assessed the color of skin, sclera of the eye, and mucous membrane of mouth and nose every 8 hourly.
- Checked for any signs of complication (if any change is noticed, notify a physician).
- Checked neurological status 8 hourly to identify complications of bilirubin encephalopathy.
- Checked vital signs every 4 hourly.
- Monitor intake output and checked urine and stool color.
- Checked weight daily to evaluate weight loss or gain.
- Kept skin clean and dry.
- Provided health education to family members.
- Provide psychological support to family members

Finally after all hardships baby's Total serum bilirubin was 4.6mg/dl and baby and parents were happy, mother thanked all of us for giving her child a good nursing care

TLC MOMENT

DISCUSSION

This case illustrates the accurate diagnosis, prompt treatment and effective nursing management of Neonatal Jaundice.

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