Short Communication

An overview of neonatal jaundice: The burden and the way forward

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Jaundice is the most common condition that requires medical attention in newborns. The yellow coloration of the skin and sclera in newborns with jaundice is the result of accumulation of unconjugated bilirubin. In most infants, unconjugated hyperbilirubinemia reflects a normal transitional phenomenon. However, in some infants, serum bilirubin levels may rise excessively, which can be a cause for concern because unconjugated bilirubin is neurotoxic and can cause death in newborns or lifelong neurologic problem in infants who survive due to prolong bilirubin-induced brain dysfunction (kernicterus). For these reasons, the presence of neonatal jaundice frequently results in diagnostic evaluation and rapid treatment after birth. Preventive measures during ante-natal, peri-natal and post-natal periods remain key to avoiding neonatal jaundice.

Key words: Jaundice, Bilirubin and Neonate.

INTRODUCTION

Neonatal jaundice also known as neonatal hyperbilirubinemia is a condition characterized by yellowness of the skin and other tissues of a neonate due to an elevated bilirubin level of more than 85 μmol/l (Click et al., 2013). Bilirubin is a yellow substance that the body creates when it replaces old red blood cells (Kumral et al., 2009). This substance (bilirubin) is broken down by the liver so it can be removed from the body in stool while under normal circumstances a tiny amount is converted to urobilinogen and excreted through urine (Kumral et al., 2009). In intrauterine life, the placenta (an organ that grows during pregnancy to feed and provide nutrient for the child) removes bilirubin from the child’s body (Click et al., 2013). After birth however, the child’s liver takes over the function of bilirubin clearance but may not be efficient enough thus resulting in jaundice in most newborns (McDonagh, 2007). Jaundice in neonate is detected by blanching the skin with pressure applied by a finger so that it reveals underlying skin and subcutaneous tissue (Click et al., 2013). Jaundiced newborns have yellow discoloration of the white part of the eye (sclera), and yellowing of the face, extending down to the chest (Ennever et al., 2010). The yellow discoloration of the skin is first noted in the face and as the bilirubin level rises, it proceeds caudal to the trunk and then to the extremities (Ennever et al., 2010).

Neonatal jaundice can make the newborn sleepy and interfere with feeding while extreme jaundice can cause permanent brain damage from kernicterus (a bilirubin-induced brain dysfunction) (Kumral et al., 2009; Cappellini et al., 1999). Infants whose palms and soles are yellow, have serum bilirubin level of over 255 μmol/l which is considered more serious and require medical attention before the mother is discharged from the hospital after birth (Click et al., 2013). Jaundice is common in newborns and affects over 50-60% of all babies in the first week of life (Nadir et al., 2011).

CAUSES OF NEONATAL JAUNDICE

Severe newborn jaundice may occur if the baby has a condition that increases the number of red blood cells that need to be replaced in the body. Also, factors that
make it difficult to eliminate bilirubin from the body can predispose neonates to jaundice; these factors as according to the United States National Institute for Health and Care Excellence (2010) include but not limited to abnormal blood cell shapes, blood type mismatch between the mother and baby, bleeding underneath the scalp (cephalohematoma) caused by a difficult delivery, higher levels of red blood cells, which is more common in small-for-gestational-age babies and some twins, infections, lack (deficiency) of certain important proteins (enzymes), maternal use of certain drugs such as sulphonamides, anti-malarial drugs causing red blood cell destruction in G6PD deficient neonates, diseases of the liver or biliary tract, such as cystic fibrosis or hepatitis, low oxygen level (hypoxia), genetic or inherited disorders such as Gilbert syndrome, Zellweger’s syndrome, Dubin-Johnson and Rotor’s syndromes, etc. Children who are born too early (premature) are also more likely to develop jaundice than full-term babies.

MANAGEMENT AND TREATMENT

Treatment is not needed most of the cases, but when needed, treatment will depend on the baby's bilirubin level, whether the baby was born prematurely and the child’s age. Some newborns need to be treated before they leave the hospital while others may go back to the hospital when they are a few days old (Nadir et al., 2011). Treatment in the hospital usually lasts 1 to 2 days or more (Nadir et al., 2011). A child will however need treatment if the bilirubin level is too high or is rising too quickly. Treatment may include phototherapy where special blue or white lights are used on infants whose bilirubin levels are very high (Dobbs and Cremer, 2001). These lights work by helping to break down bilirubin in the skin; this is called phototherapy. Phototherapy is the primary treatment in neonates with unconjugated hyperbilirubinemia (Cremer et al., 2007). This therapeutic principle was discovered rather serendipitously in England in the 1950s and is now arguably the most widespread therapy of any kind used in newborns excluding prophylactic treatments (Dobbs and Cremer, 2001).

Also, in the most severe cases of jaundice, an exchange transfusion is required. In this procedure, the child’s blood is replaced with fresh blood (Mehta et al., 2005). Giving neonates with very severe jaundice intravenous immunoglobulin at 500 mg/kg may also be effective in reducing bilirubin levels (Huizing et al., 2008).

Importantly, neonates with jaundice need to be kept well hydrated with breast milk or formula. Feeding the child often (up to 12 times a day) to encourage frequent bowel movements is recommended as these will help remove bilirubin through the stools (Murphy et al., 2012).

CONCLUSION

Neonatal jaundice is a condition clinically diagnosed when serum bilirubin exceeds 85 µmol/l. It occurs in 50 to 60% of term neonates. Although most cases are physiological, jaundice in the first 24 h of life is considered pathological. Treatment for neonatal jaundice is needed in severe cases and includes phototherapy or exchange transfusion. The major complication of jaundice in neonates is kernicterus; an irreversible bilirubin-induced brain dysfunction or damage.

RECOMMENDATION

In newborns, some degree of jaundice is normal and probably not preventable, but close monitoring of the condition can help prevent complications and this can be achieved as follows: There should be follow-up by a pediatrician 48 hours after discharge to check total serum bilirubin and haematocrit values; Breastfeeding or bottle feeding should be continued to encourage bowel movement and consequent bilirubin excretion; All pregnant women should be tested for blood type and unusual antibodies while follow-up testing on the infant's cord is recommended to avoid blood mismatch between mother and child as well as a detailed medical history of the mother should be considered as part of diagnosis for risk factors.

REFERENCES

