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Review Article

Physiological Jaundice: A Threat to the Newborns

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Abstract

Jaundice is increase in bilirubin level of the blood beyond the normal level. There are two main types of jaundice, the immune jaundice and physiological jaundice. Physiological jaundice occurs most time in the children wards of the hospitals and makes the parents of the newborn to be under tension. Physiological jaundice can be treated with phototherapy and goes spontaneously. This paper is written to enlighten the world on the issue bordering on this type of jaundice to prepare everybody on the best approach of condition when it occurs.

Introduction

MedlinePlus (2016) [1] reported Jaundice as a yellowish or greenish colouration of the skin and whites of the eyes due to high bilirubin levels. Jaundice is shown to be the most common case that needs medical attention and hospital readmission in newborns [2]. It is commonly linked to itchiness. The faeces may be pale and the urine dark [3]. Jaundice in babies occurs in over half in the first week following birth and does not pose a serious threat in most [1].

Physiological jaundice is the most common type of newborn hyperbilirubinemia, having no serious effects [4]. Neurodevelopmental aberrations including as athetosis, loss of hearing, and in rare cases intellectual deficits, may be associated to high toxic level of bilirubin [5]. Jaundice related to physiological immaturity

which usually occurs between 24-72h of age and between 4th and -5th days can be regarded as its peak in term neonates and in preterm at 7th day, it disappears by 10-14 days of life [6]. Unconjugated bilirubin is the major form and usually its serum level is less than 15mg/dl [7]. Bilirubin levels up to 17-18mg/dl may be accepted as normal in term of healthy newborns [8].

Mechanisms Involved in Physiological Jaundice Are Mainly

• Relatively low activity of the enzyme glucuronosyltransferase which normally converts unconjugated bilirubin to conjugated bilirubin that can be excreted into the gastrointestinal tract [9]. Before birth, this enzyme is actively down-regulated, since bilirubin needs to remain unconjugated in order to cross the placenta to avoid being accumulated in the fetus [10]. After birth, it takes some time for this enzyme to gain function.

• Shorter life span of fetal red blood cells [9], being approximately 80 to 90 days in a full term infant [11], compared to 100 to 120 days in adults.

• Relatively low conversion of bilirubin to urobilinogen by the intestinal flora, resulting in relatively high absorption of bilirubin back into the circulation [9].

Clinical Examination of Jaundice

Originally described by Kramer [12], dermal staining of bilirubin may be used as a clinical guide to the level of jaundice. Dermal staining in newborns progresses in a cephalo-caudal direction [13]. The newborn should be examined in good daylight. The physician should pale the skin by digital pressure and the underlying color of skin and subcutaneous tissue should be noted. Newborns who are detected the yellow skin beyond the thighs should have an urgent laboratory confirmation for bilirubin levels. Clinical assessment is unreliable if a newborn has been receiving phototherapy and has dark skin [14].

Diagnosis

Diagnosis is often by measuring the serum bilirubin level in the blood. In those who are born after 35 weeks and are more than a day old transcutaneous bilirubinometer may also be used. The use of an icterometer, a piece of transparent plastic painted in five transverse strips of graded yellow lines, is not recommended [15]. Bilirubin level can also be checked through biochemical method or a Bilimeter.

Transcutaneous Bilirubinometer

This method is noninvasive and is based on the principle of multi wavelength spectral reflectance from the bilirubin staining in the skin [16]. The accuracy of the instrument may be affected by variation of skin pigmentation and its thickness [17].

Treatment Options for Jaundice

The treatment options for jaundice include phototherapy further subdivided to conventional, intensive and exchange transfusion, and pharmacological treatment subdivided to phenobarbitone, intravenous immunoglobulins (IVIG), metalloporphyrins and follow up remedies [18].

Conclusion

Jundice is a serious medical condition and occurs at any age but physiological jaundice occurs mainly in newborn. It is mild because it can be treated with phototherapy or goes spontaneously. Hyperbilirubinemia is more severe in newborns. Therefore precautionary measure should be adopted by both parents, and clinicians to diagnose and treat the disease properly. Government and public health organizations should arrange seminars, workshops and trainings for mothers regarding neonatal jaundice. Medical scientists should search for new treatments and preventive measures having no side effects and capable of recovering babies more speedily. Partners should screen their ABO blood groups as well as Rh factor before marriage. Consanguineous marriages should be avoided.

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