Editorial

Early predictors of significant hyper bilirubinemia in ABO incompatible newborns

Aulakh R[1].

[1]Dr. Roosy Aulakh, Associate Professor, Department of Pediatrics, Govt. Medical College & Hospital, Chandigarh.

Corresponding Author: Dr. Roosy Aulakh, Associate Professor, Department of Pediatrics, Govt. Medical College & Hospital, Chandigarh, India. Email: drroosy@gmail.com

Abstract

ABO incompatibility have been singularly reported to be strong risk factors in the development of significant hyper bilirubinemia in newborns but usually a combination of these are seen to co-exist in the clinical scenarios commonly witnessed in day to day practice.

Keywords: ABO incompatibility, Risk factors, Early predictors

Introduction

With the current practice of early discharge of asymptomatic newborns following delivery, reliable early predictors of significant hyper bilirubinemia in ABO incompatible newborns gain significance so as to guide in deciding the time of discharge of asymptomatic ABO incompatible newborns.

Numerous risk factors like late preterm gestational age, exclusive breastfeeding, glucose-6-phosphate dehydrogenase (G6PD) deficiency, East Asian ethnicity, jaundice in first 24 hours of birth, presence of cephalhematomaor previous sibling requiring phototherapy in addition to ABO incompatibility have been singularly reported to be strong risk factors in the development of significant hyper bilirubinemia in newborns but usually a combination of these are seen to co-exist in the clinical scenarios commonly witnessed in day to day practice.

Recently researchers have evaluated various factors which could reliably predict the development of severe hyper bilirubinaemia and kernicterus in ABO-incompatible neonates. Bakkeheim E et al reported that maternal antibody-titres (IgG anti-A and anti-B) were the only significant predictors for immunoglobulin treatment ($p < 0.0001$), exchange transfusion ($p < 0.05$) and duration of phototherapy ($p < 0.0001$) in ABO incompatible newborns [1]. A serum bilirubin measurement and the use of the critical bilirubin levels of 4 mg/dL and 6 mg/dL at the sixth hour of life were reported by Sarici SU et al to predict nearly all newborns who will have significant hyper bilirubinemia and those who will develop severe hemolytic disease of the newborn, respectively. The 35th and 90th percentile tracks of an hour (age)-specific percentile-based nomogram were reported to be safe risk demarcators in deciding about the time of discharge of ABO-incompatible newborns from the hospital [2]. Transcutaneously measured bilirubin levelwas documented by Stoniene D et al to underestimate serum bilirubin level who reported that at the age of 6 hours transcutaneous bilirubin (TcB) level >or=98 micromol/ L, ABO hemolytic disease in newborns may be diagnosed with 100% sensitivity and 98% specificity; positive predictive value of 62% and negative predictive value of 100%. While a newborn's age increases, TcB sensitivity and specificity for diagnosing ABO hemolytic disease decrease and hence caution was advised by the investigators in evaluating bilirubin level transcutaneously while using serum bilirubin level nomograms [3].

Another study by Covas_Mdel C et alto determine serum unconjugated bilirubin (UB) at 24-36 hours that better predicts severe hyper bilirubinemia reported a serum UB value of 8.75 mg% at 24-36 hours showed the best performance: sensitivity 78%, specificity 83%, positive predicted value 45% and negative 95% [4]. In the current issue, *Janaki ANet al have* estimated the levels of bilirubin and albumin in cord blood and determined their relationship with the occurrence of neonatal hyper bilirubinemia in ABO incompatible newborns. They concluded that amongst ABO

incompatible neonates, the ones having umbilical cord blood total bilirubin >1.85 mg/dl and albumin <3.15 g/dl need close follow up to watch for development of significant hyper bilirubinemia while those babies with umbilical cord total bilirubin <1.85 mg/dl and albumin>3.15 g/dl can be safely discharged early [5]. This finding, if replicated by further studies, could provide reliable early predictors for risk of development of significant hyper bilirubinemia in ABO incompatible neonates in form of cord blood albumin and bilirubin levels. Combining the already known risk factors with such early predictors of significant hyper bilirubinemia in ABO incompatible neonates could further enhance the significant hyperbilirubinemia risk prediction and guide in time of discharge of asymptomatic ABO incompatible neonates.

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