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Pediatrics 2018: Haptoglobin in cord blood- A biomarker to predict neonatal jaundice - Prathipa Santhanam - Brookdale University Hospital and Medical Center

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Background:
Neonatal Jaundice is the most widely recognized condition that requires medical attention in infants. It is seen during the first seven day stretch of life 60% term and 80% of pre-term infants. In certain infants, serum bilirubin levels may excessively rise. Unconjugated bilirubin is neurotoxic and can cause permanent neurological sequelae. Hence, the presence of neonatal jaundice much of the time needs diagnostic evaluation and checking. The main source of bilirubin originates from breakdown of Hemoglobin in Red Blood Cells. At the point when hemolysis happens, a fall in Haptoglobin (Hp) levels occurs, because of binding of free hemoglobin. Our study is aimed to evaluate whether Hp level in Umbilical Cord Blood (UCB) can serve as an early indicator to anticipate future event of jaundice.

Objective:
To assess the Hp level in cord blood of neonates, born at term. To connect with UCB Hp level and bilirubin concentration of newborns who develop jaundice and evaluate whether Hp can be an early indicator of jaundice.

Design/Methods:
Full term, normal babies born to mothers with gestational age ≥37 weeks in a one month period was included in the prospective cohort study.

Exclusion criteria: Sepsis, Liver illness, Birth injury (Cephalhematoma) and congenital irregularities. In our foundation, in all healthy term infants, the standard practice is to perform serum bilirubin testing on clinically jaundiced babies before discharge, on Day three of life. Anicteric infants don't complete bilirubin testing. IRB approval obtained. Cord blood collected in EDTA compartment in successively consenting mothers and tested for Hp utilizing Roche units in Roche Integra Analyzer. Correlational analysis performed utilizing bilirubin and Hp esteems.

Results:
Out of 54 infants, 27 were clinically anicteric, with a mean Hp level of 3.66±2.51 mg/dl. The staying 27 clinically embittered infants' mean Hp level was 2.78±1.10 mg/dl. The mean Hp estimation of anicteric children was higher than the icteric infants; anyway it was not measurably huge. A noteworthy negative relationship was found between the Hp level from the Umbilical Cord taken during delivery and the bilirubin value on the third day (r= - 0.341; P=0.04). Our study has demonstrated that as the cord blood Hp value decreases, there is a relating increase in bilirubin value.

Conclusion(s):
Hp from UCB may be a useful marker to identify the risk of developing jaundice in newborns in the near future. Further studies with greater sample size are required to study this relationship. This may enable babies with higher risk for significant jaundice to be detected earlier.

Introduction:
Haptoglobin is a protein created by the liver that the body uses to clear free hemoglobin from circulation. Hemoglobin is the iron-containing protein complex that transports oxygen all through the body. It is ordinarily found inside red platelets (RBCs) and very little is discovered free coursing in the blood. Haptoglobin binds to free hemoglobin in the blood. This forms a haptoglobin-hemoglobin complex that is quickly cleared out of circulation for degradation and iron reusing.

Neonatal jaundice is the result of unevenness between bilirubin creation and disposal. Bilirubin conjugation in infants is significantly impaired in the first few days; even a little increment in the pace of production can add to the development of hyperbilirubinemia. Hemolysis has a huge role in bilirubin increase in newborns. Intrauterine is endured by the maternal metabolism in life. At the point when hemolysis takes place, a reduction is accepted in the haptoglobin and hemopoexin blood levels binding hemoglobin in the environment. In this way, it might be considered as that haptoglobin and hemopoexin from the early period umbilical cord (UC) blood in babies might be a pointer in determining jaundice likely to develop in later stages.

Neonatal jaundice is widespread issue in babies and is regularly the reason for a parent to consult a health visitor or doctors. It is perceived that up to 40 percent of breastfed newborn children have jaundiced at 14 days age and need examinations. Serum bilirubin levels may extremely raise and lead to death or long lasting neurologic sequelae in babies who survive. Accordingly, an early recognition of infants at hazard of developing serious hyperbilirubinemia, persist to be a difficulty in neonatology. Hyperbilirubinemia in the first days of life can be induced because of expanded heme catabolism. Hemoglobin attaches instantly with haptoglobin, a serum glycoprotein, and structures a steady hemoglobin-haptoglobin (Hb-Hp) atom. Haptoglobin has been recommended to be more advantageous than the other protein markers to measure acuteness of hemolysis.

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