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## Haptoglobin in cord blood- a biomarker to predict neonatal jaundice

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**Background:** Jaundice is the most common condition that requires medical attention in newborns. It is observed during the 1st week of life ~60% term and 80% of pre-term infants. In some infants, serum bilirubin levels may excessively rise. Unconjugated bilirubin is neurotoxic and can cause permanent neurological sequelae. Hence, the presence of neonatal jaundice frequently needs diagnostic evaluation and monitoring. The main source of bilirubin comes from breakdown of Hemoglobin in Red Blood Cells. When hemolysis takes place, a fall in Haptoglobin (Hp) levels occur, due to binding of free hemoglobin. Our study is aimed to assess whether Hp level in Umbilical Cord Blood (UCB) can serve as an early indicator to predict future occurrence of jaundice.

**Objective:** To assess Hp level in cord blood of babies born at term. To correlate with UCB Hp level and bilirubin concentration of newborns who develop jaundice and assess whether Hp can be an early predictor of jaundice.

**Design/Methods:** Full term, normal babies born to mothers with gestational age  $\geq 37$  weeks in a one month period was included in the prospective cohort study. Exclusion criteria: Sepsis, Liver disease, Birth trauma (Cephalhematoma), Congenital anomalies. In our institution, in all healthy term newborns, the standard practice is to perform serum bilirubin testing on clinically jaundiced babies before discharge, on Day three of life. Anicteric newborns do not get bilirubin testing done. IRB approval obtained. Cord blood collected in EDTA container in consecutively consenting mothers and assayed for Hp using Roche kits in Roche Integra Analyser. Correlational analysis performed using bilirubin and Hp values.

**Results:** Out of 54 babies, 27 were clinically anicteric, with a mean Hp level of  $3.66 \pm 2.51$  mg/dl. The remaining 27 clinically jaundiced babies' mean Hp level was  $2.78 \pm 1.10$  mg/dl. The mean Hp value of anicteric babies was higher than the icteric babies, however it was not statistically significant. A significant negative correlation 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 shown that as the cord blood Hp value decreases, there is a corresponding increase in bilirubin value.

**Conclusion(s):** Hp from UCB maybe 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.

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