

Non-invasive Transcutaneous Bilirubinometry (TCB) of neonatal hyperbilirubinemia in comparison with traditional laboratory methods in 423 neonates in Mahdieh hospital

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Neonatal hyperbilirubinemia is one of the most important & prevalent neonatal diseases, which can lead to inevitable complications. Its screening, treatment and post-discharge follow-up are common problems in pediatrics. Non-Invasive Transcutaneous Bilirubinometry (TCB), a new method of neonatal icter assessment, has been invented in pervious decades and has been mentioned as a new subject for researches in current years. The purpose of this study was to calibrating the mentioned method for Iranian race and assessing accuracy and reliability of transcutaneous bilirubin measurements.

This study has been done as a diagnostic clinical on 423 neonates in Mahdieh hospital in Tehran. The previous studies have noted gestational age and phototherapy as remarkable factors, which effect the calibration, so neonates were divided in 4 groups and simultaneously were been assessed with traditional method for Serum Bilirubin determination (Gendrassik-Graf method) and Non-Invasive Transcutaneous Bilirubinometry method (with **Bilitest** devices).

At the end, statistical Exams showed that Birth weight and skin colour have not considerable affect on Transcutaneous bilirubinometry calibration. The data were correlated with simultaneous plasma bilirubin values and we obtained a Correlation coefficient value of 0.94.

In assessing specificity and sensitivity, the best sensitivity was obtained in mature and term neonates without phototherapy (93%-100%) and the lowest sensitivity was obtained in term neonates with phototherapy (86%). sensitivity in all of neonates was 90%-93%, which was compatible with other studies. The specificity was variable between 40%-to 71%. Overall it has been considered as a cost-benefit method, which can lower iatrogenic complications and accelerate hyperbilirubinemia screening, treatment and post-discharge follow-up.

Key words: Transcutaneous Bilirubinometry - Bilirubin -Neonatal icter screening.