Association of Transcutaneous Carbon Monoxide and Bilirubin Levels in Healthy Term Newborns

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Background and Aims

End tidal measurement of carbonmonoxide (CO) as a side product of hemoglobin turn over may be an indicator of bilirubin production and hemolysis. We aimed to evaluate the association of transcutaneus CO measurement and bilirubin levels in healthy term newborns as an alternative to end tidal CO.

Methods

A total number of 390 infants were recruited in the study. Infants who were born in our hospital (n=340) were followed by daily transcutaneus CO and capillary bilirubin measurements starting from birth to discharge. Remaning 50 infants were admitted for hyperbilirubinemia treatment after 72 hours of life. Transcutaneous CO measurements were done by Masimo pulse oxymeter.

Results

Capillary bilirubin and transcutaneus CO levels on 24 and 48 hours of life were positively correlated (Spearman correlation coefficients r=0.21 and 0.87 respectively, p values for both analyses < 0.001). Bilirubin levels and transcutaneous CO measurements were levels were also positively correlated in infants admitted for hyperbilirubinemia (Spearman correlation coefficient r=0.41, p<0.001).

Conclusion

Our data showed positive and statistically significant correlations between bilirubin and transcutaneous CO measurements not in only healthy term newborns but also in newborns with hyperbilirubinemia. Therefore transcutaneous CO measurement deserves attention in order to obtain threshold levels for prediction of severe hyperbilirubinemia