

عنوان مقاله:

A Comparative Study of Blood Glucose Measurements Using Glucometer Readings and the Standard Method in the Diagnosis of Neonatal Hypoglycemia

محل انتشار:

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خلاصه مقاله:

Background: Hypoglycemia is one of the most common neonatal disorders, associated with severe complications. There has been a great deal of controversy regarding the definition and screening of hypoglycemia. Therefore, in this study, we aimed to determine a cut-off value for blood glucose level in glucometer readings. Methods: This cross-sectional study was conducted on 238 newborns at risk of hypoglycemia, admitted to Baqiyatallah Hospital of Tehran, Iran in 2012; the subjects were selected via simple sampling. After obtaining informed consents from the newborns' parents, 1 cc blood samples were sent to the laboratory for measuring the blood glucose level. Moreover, venous blood samples, as well as heel-stick blood samples, were obtained for glucometer measurements. Blood glucose measurements were used to determine the cut-off value by the receiver operating characteristic (ROC) curve and make comparisons with the diagnostic criteria for hypoglycemia in the literature. Results: A total of 238 infants with the mean weight of 2869 ± 821.9 g were enrolled in this study. The mean (\pm SD) blood glucose levels were 65.1 ± 22.9 , 82.9 ± 24.7 , and 84.4 ± 24.8 mg/dl, based on the standard laboratory method, glucometer reading of venous blood samples, and glucometer reading of heel-stick capillary blood samples, respectively. The optimal cut-off point for hypoglycemia was determined as 65 mg/dl, using glucometer-based assessment of heel-stick blood samples. Conclusion: The significant difference in blood glucose levels measured by the laboratory method and outpatient glucometer readings highlights the importance of a cut-off value for rapid assessment and control of blood glucose and timely detection of hypoglycemia. In fact, the cut-off value introduced in the present study could facilitate such measurements.

کلمات کلیدی:

Glucometer, Neonatal hypoglycemia, Screening

