Predictive value of nucleated red blood cells count in cord blood of newborn

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Abstract

Background: The screening of infants who need to be admitted immediately following birth but without application of invasive procedures is of prime importance.

Objective: The aim of this study was to evaluate the value of nucleated red blood cells (nRBCs) count of cord blood in predicting the need for admission to NICU or neonatal ward.

Methods: This was a case-control study performed on 100 live, newly born full-term infants (70 healthy infants and 30 infants admitted to NICU or neonatal ward) at Vali-e-Asr Hospital of Zanjan (Iran) in 2005. Umbilical cord blood was collected at delivery time to measure the nRBCs count. Data were collected through questionnaires and further analyzed by SPSS using chi square and Mann-Whitney Tests.

Findings: The mean nRBCs counts in admitted neonates (case group) and healthy infants (control group) failed to show a statistically significant difference however, by omitting the cases for whom negative nRBCs counts were reported, a significant difference between two groups was observed. The number of abnormal nRBCs, the mean number of abnormal nRBCs, and the number of absolute abnormal nRBCs (nRBCs>1000) in cord blood of the case group were significantly higher than those in control group. The sensitivity and specificity of nRBCs count were 33.3% and 100%, respectively.

Conclusion: Although the nRBCs count alone could not be considered as an ideal screening tool for those group of neonates with clinical complications however, it seems that the nRBCs count could be a helpful diagnostic parameter in predicting a need for admission

Keywords: Nucleated Red Blood Cells, Erythrocytes, Neonate, Cord blood, NICU

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ارزش شمارش گلوله‌های قرمز هسته‌دار خون بر نوزادان در پیش‌گویی نیاز به پستری

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مقدمه:
غربال گی نوزادان از نظر نیاز به پستری بلافاصله بعد از تولد با روش‌های کم هزینه هیچ تهیه‌ای و بسیار به‌طور چشمگیری تحت تأثیر قرار می‌دهند. این جهت نزدیکی به کودک‌ها برای سرگرمی‌های بی‌ارزش می‌شود. گلوله‌های قرمز هسته‌دار در خون نوزادان، یک اجزای بنیادی از ساختار خون و سلول‌های تولیدن درون دهنده هیپوکسی جنین به‌شمار می‌آید. آزمایش‌هایی نشان می‌دهند که گلوله‌های قرمز هسته‌دار در مرحله سوم از زایمان، نیاز به پستری را افزایش می‌دهند.