Title of Abstract:

Hematocrit in Preterm Infants Born <35weeks of Gestation Who Received at least 60 Seconds of Delayed Cord Clamping

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Abstract Description:

Background

Preterm infants are often born with lower hematocrits and are at high risk for requiring blood transfusions. Delayed cord clamping (DCC) allows for larger placental transfusion and increases blood volume in newborns (Straus 2003). Meta-analysis of RCTs have shown less need for blood transfusion in preterm infants who received >30s of DCC (Cochrane 2012). Newborn hematocrit nomograms have been established for term and preterm infants (Jopling 2009) who received immediate cord clamping as the standard of care.

Objective

To describe hematocrit values in preterm infants at birth who received at least 60s of DCC.

Methods

This retrospective cohort study included 316 preterm infants <35 weeks gestational age (GA) from a regional level 3 NICU between May 02, 2013 and June 30, 2016. Hematocrit values obtained from hemograms using a Coulter counter or from blood gas samples were collected from medical records. Hematocrit values obtained after RBC transfusions were excluded. We summarized the first hematocrit value (0-4 hours) for each GA as mean, standard deviation and 95% confidence interval. We also compared paired first (0-4 hours) and second hematocrit (4-24 hours) values for GA groups: 23-29 weeks, 30-31 weeks, and 32-34 weeks.

Results

The mean first hematocrit was 45% (n=33), 47% (n=30), 50% (n=52), 51% (n=47), 53% (n=53), and 55% (n=101) for infants 23 to <28, 28 to <30, 30 to <32, 32, 33, and 34 weeks GA, respectively. In comparing paired samples, the second hematocrit was higher than the first in all GA groups. It increased from 46% to 47% (n=28), from 50% to 54% (n=56), and from 54% to 57% (n=43) for infants 23 to <29, 29 to <33, and 33 to <35 weeks GA, respectively.

Conclusion

Our study is the first to describe hematocrit reference values in preterm infants who received at least 60s DCC. We show that the second hematocrit is higher than the first hematocrit in our study. The first hematocrit values in our study is higher than that previously described across all gestational ages. Hence the reference ranges for hematocrit values have to be redefined in larger populations of infants who received DCC.

Funding Acknowledgement (if applicable):

VMC Foundation

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