Utilizing Cord Blood as a Strategy for Blood Conservation

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BACKGROUND

Preterm infants less than 32 weeks gestation or very low birth weight (VLBW) infants (those who are born weighing less than 1500 grams) are directly admitted into the Neonatal Intensive Care Unit (NICU). The admission process entails stabilizing the neonate and obtaining admission labs include: blood culture, complete blood count with manual differential, blood typing with antibody and direct antiglobulin testing, and newborn screen for a total of approximately 2.5ml of blood. This is a significant blood loss to our premature infants who weigh only 500-700 grams at birth. Utilizing postnatal umbilical cord sampling will prevent phlebotomy pain as well as stabilizing the infant's blood pressure, resulting in less need for vasopressors or blood transfusions within the first week of life.

PURPOSE

This poster highlights the benefits of using the blood from the umbilical cord as a means to obtain lab specimens for infants admitted to the NICU. It also demonstrates the appropriate steps and rationale in how to draw labs from the umbilical cord.

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METHODS

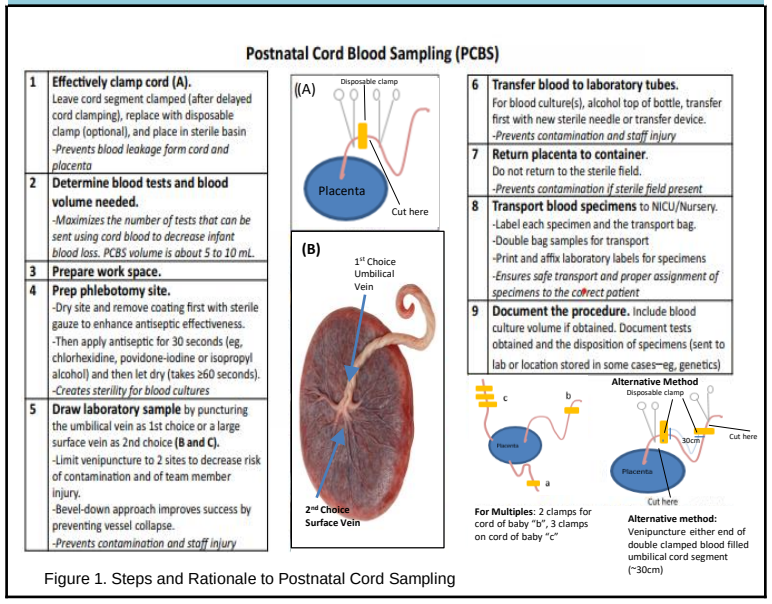

Figure 1. Steps and Rationale to Postnatal Cord Sampling

RESULTS

Postnatal umbilical cord blood sampling benefits our preterm infants the most, especially the ones that are considered very low birth weight. It assists in improving extrauterine transition and aids in stabilization of the preterm infant's blood pressure, resulting in a decrease need to infuse vasopressors or initiate blood transfusions within the first week of life. It also decreases the blood losses and reduce pain or discomfort related to phlebotomy and decreases the risk for possible intraventricular hemorrhages in our VLBW infants.

Studies have shown that specimen retrieved from the umbilical cord results in a reliable blood culture, CBC with manual differential, blood type with antibody and direct antiglobulin testing, as well as genetic and metabolic testing. One key benefit of using cord blood is that it can provide a larger specimen, increasing the sensitivity of the blood culture. This can potentially increase the detection of early-onset infections.

CONCLUSIONS

The initial goal to draw all of the lab specimens from the cord had to be changed due to lab criteria for certain specimens. Our NICU, however, have been able to utilize 1.5ml of cord blood for our blood culture and complete blood count. This practice has helped the NICU minimize the initiation of vasopressors and delay the time between birth and first blood transfusion. With our success in the preterm neonatal population, we have also initiated incorporated utilizing cord blood for initial testing to our more critical full term infants.

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