DELAYED CORD CLAMPING/PLACENTAL TRANSFUSION FOR PRETERM/TERM INFANTS

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Critical Points

DCC/placental transfusion is the process in which the umbilical cord is not clamped or cut until at least 30 seconds from birth of the neonate.

1. Term infants
   a. DCC increases Hgb levels at birth and improves iron stores in the first several months of life, which may have a favorable effect on developmental outcomes.

2. Preterm Infants
   a. Decrease mortality, intraventricular hemorrhage (IVH), transfusion, necrotizing enterocolitis\textsuperscript{1,2,3}
   b. Increase hematocrit, and blood pressure soon after birth\textsuperscript{2}
   c. Improved motor function at 18-22 months\textsuperscript{4}

3. The procedure can be terminated or not initiated at the discretion of the providers (obstetrician, pediatrician and registered nurse).

4. DCC should be performed for at least 30 seconds, ideally more than 1 minute. It is more effective if cord is clamped after infant's breathing is established\textsuperscript{5-7}.
   a. When the infant starts breathing, the lung aeration allows for the pulmonary vascular resistance to drop which then increases pulmonary blood flow and pulmonary venous return.
   b. At the time of cord clamping, the umbilical venous return is interrupted and systemic vascular resistance increases. If breathing is not established by the time of cord clamping, there is a 30-50% drop in cardiac output due to the increase in afterload and decrease in pre-load via ductus venosus.
   c. Clamping the cord after breathing is established maintains the cardiac output (due to the preload from pulmonary venous return).
   d. Clamping the cord after for a few minutes will allow effective transfusion of blood from the placenta to the infant.

5. Immediate cord clamping should be considered and delayed cord clamping NOT initiated in the following cases
   a. Maternal hemodynamic instability
   b. Cord/Placental event
   c. Placental abruption with severe active bleeding
   d. Cord avulsion/tear/true knot or damage/disruption of placenta during delivery

6. Rare specific neonatal conditions with need for immediate intervention after birth
   a. Hydrops
   b. Rare critical congenital heart disease with anticipated need for immediate intubation
   c. Congenital diaphragmatic hernia (CDH)
   d. CPAM with thoraco-amniotic shunt in place
   e. Twin A of monochorionic gestation, Recipient twin in twin/twin transfusion syndrome (TTTS)
Delayed Cord Clamping Placental Transfusion Procedure (continued)

f. For neonates born apparently “lifeless” with no reactivity and movement, DCC can be performed with gentle stimulation and bulb suctioning for at least 30 seconds \textit{at the discretion of the pediatrician}. If there is some tone and movement, OK to allow up to 60 seconds for spontaneous respirations to occur during DCC.

7. \textbf{Special conditions that are NOT contraindication to DCC}
   a. Placenta previa, chronic abruption with no active bleeding
   b. Reducible nuchal cord
   c. Meconium stained fluid
   d. HIV
   e. Dichorionic twin pregnancy,\(^8\) twin B of monochorionic gestation
   f. Anemia due to isoimmunization\(^9\)
   g. Crash c-sections for fetal distress
   h. Maternal general anesthesia\(^7\)

Procedure

1. Determine gestational age of infant
   a. Term/late preterm infants \(> 36\) weeks delivering vaginally
      i. Position neonate on maternal abdomen after birth
      ii. Delay for at least 5 minutes ideally, time to be monitored and announced by bedside nurse
   b. Term/late preterm infants \(> 36\) weeks delivering via CS
      i. Position neonate at level of placenta after birth
      ii. Provide warm, dry stimulation for neonate
      iii. Assess for vigor of infant at 30 seconds (ICN or bedside RN to determine)
      iv. Delay for at least 60 seconds ideally, time to be monitored and announced by bedside/circulating nurse
   c. Preterm infants \(< 36\) weeks
      i. Direct communication must be done regarding cord clamping strategy with the ICN Fellow or Attending for neonates \(< 36\) weeks.
      ii. Experienced neonatology provider in DR/OR to assist with DCC decision for all infants born \(< 34\) weeks
      iii. Bedside RN to monitor start and stop time of DCC and provider to document in delivery summary

2. Cord Milking
   a. Infants \(< 35\) weeks: Recommend against cord milking due to higher rate of IVH\(^10\) in neonates \(< 28\) weeks.
   b. Infants \(> 35\) weeks: Cord milking may be considered if the infant is not vigorous during initial 30 second assessment. There is no current robust evidence on risks and benefits for this procedure.
   c. If cord milking is employed, delivery provider to perform cord milking 3 times and clamp cord
### References

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* FAME Scale details: See nursing policy [Policy, Procedure, & Competency Development, Review, & Approval](https://example.com/policy)