DELAYED UMBILICAL CORD CLAMPING IN THE PRETERM INFANT

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OBJECTIVES

At the conclusion of this presentation the participant will be able to:

- Define delayed cord clamping
- Understand the delayed cord clamping process
- Identify the benefits of delayed cord clamping
- Identify the contraindications and relative contraindications for delayed cord clamping
- Identify methods to prevent hypothermia in the severely preterm infants during delayed cord clamping
WHAT IS DELAYED CORD CLAMPING?

- Delayed clamping of the umbilical cord for 30-60 seconds after delivery
- Infant held at level of or below the placenta
- Delayed cord clamping is still successful in infants born via a cesarean section, even if they cannot be held at the level below the placenta. Umbilical arteries constrict faster than umbilical veins permitting the placenta to infant blood flow and restricting the infant to placenta blood flow.
- Recommended for preterm infants 24-36.6 weeks gestation (gestational age requirements vary between institutions)

American College of Obstetricians and Gynecologists [ACOG], 2012
“Evidence supports delayed umbilical cord clamping in preterm infants. As with term infants, delaying umbilical cord clamping to 30–60 seconds after birth with the infant at a level below the placenta is associated with neonatal benefits, including improved transitional circulation, better establishment of red blood cell volume, and decreased need for blood transfusion. The single most important clinical benefit for preterm infants is the possibility for a nearly 50% reduction in intraventricular hemorrhage.”

(ACOG, 2012)
A delay in umbilical cord clamping for 30-60 seconds in premature infants reduces:

- ↓ Number and severity of intraventricular hemorrhage
- ↓ Late onset sepsis
- ↓ Perinatal hypotension
- ↓ Need for blood transfusion
- ↓ Iron deficiency anemia in first year of life
- ↓ Necrotizing Enterocolitis
- ↓ Transitional circulation time (TTN)

(Based on a systematic review of 15 studies with 738 premature infants)

(ACOG, 2012)
(Rabe et al., 2012)
DELAYED CORD CLAMPING IS NOT RELATED TO:

- Lower Apgar Scores
- Decreased blood pH
- Admission hypothermia

Change in appearance of umbilical cord after delivery

(ACOG, 2012)
(Nurturing hearts birth services)
CONTRAINDICATIONS

- Placenta or Uterine Abruption
- Multiple gestation, specifically monochorionic gestation
- Iso-immunization & Hydrops fetalis
- Severe fetal bradycardia, or other indication for need of immediate resuscitation
- Fetal anomalies

(ACOG, 2012)
RELATIVE CONTRAINDICATIONS

The following should be discussed case by case and at the decided discretion of the OB and NICU team:

- Multiple gestations (non-monochorionic)
- Congenital anomalies
- Meconium amniotic fluid
  - May be contraindicated if the infant is not immediately vigorous

(ACOG, 2012)
The infant should be visualized throughout the procedure by the NICU team and OB.

As long as the infant is displaying acceptable tone and breathing effort the cord can be cut between 30 and 60 seconds.

At any given time, delayed cord clamping can be abandoned at the request of the NICU team or OB.

If the infant does not appear to be breathing, do not panic. If the cord is still pulsating the infant is receiving oxygenated placental blood.

(Lynch, Stevener, & Bleich, 2014)
AVOIDING HYPOTHERMIA

- Suggestions for avoiding hypothermia of the preterm infant during delayed umbilical cord clamping:
  - Set all delivery room and OR temperatures to at least 74°
  - The OB can begin drying and stimulating the infant during delayed cord clamping
  - Severe preterm infants can be immediately placed in a polyurethane bag by the OB
Preterm infants have the most to gain from delayed cord clamping

Delayed cord clamping may be indicated in underdeveloped countries where iron supplementation is not easily available for later anemia

Term infants given delayed cord clamping are more likely to experience hyperbilirubinemia, polycythemia, and respiratory distress related to polycythemia

(ACOG, 2012)
Baylor Dallas Delayed Cord Clamping Policy

SCOPE
This policy applies Registered Nurse (RN), Medical Residents, and Attending Physician staff at Baylor University Medical Center (BUMC) caring for infants 23-32 weeks gestation during the process of delivery.

PURPOSE
The intent of this policy is to provide guidelines for Delayed Cord Clamping on infants weighing less than or equal to 1500 grams and/or less than or equal to 32 weeks gestation at the time of delivery.

POLICY
1. Patients and family members are informed about the process of cord clamping and what to expect of the delivery experience.
2. The physician and the Neonatal Intensive Care Unit (NICU) team communicate to confirm the delayed cord clamping process unless, otherwise indicated by the physician.
3. Delayed cord clamping may be indicated in the presence of the following clinical criteria:
   a. 23-32 week gestation
   b. Singleton pregnancy
4. Delayed cord clamping is not done in the presence of the following clinical criteria:
   a. Major congenital anomalies
   b. Intent to withhold care
   c. Severe maternal illness
   d. Placenta abruption or placenta previa
   e. Multiple gestation
   f. Infants of diabetic mothers
   g. Hydrops fetales
   h. IUGR (<10th percentile)
   i. Meconium stained amniotic fluid
   j. Infants with cardiac anomalies
Delayed Cord Clamping – Delaying the clamping of the umbilical cord by holding the infant at or below the level of the placenta for at least 45 seconds.

PROCEDURES

These procedures are to be followed, however, they are not meant to be a substitute for professional judgment when assessing and treating patients.

Vaginal Delivery and C-Section

1. Following delivery, the infant will be held at or below the level of the placenta for at least 45 seconds.
2. A nurse attending the delivery will communicate the delayed cord clamping time appropriately.
3. During delayed cord clamping, attempts will be made by the OB provider to keep the infant warm.
4. After completion of the delayed cord clamping process, the infant will be handed to the NICU team to take over resuscitation efforts of the infant.
5. Apgars will be assigned by the NICU provider.

REFERENCES

American College of Obstetrics and Gynecologists. Committee Opinion Timing of Umbilical Cord Clamping After Birth (Number 543, December 2012), Washington, DC

WHAT NEXT?

- Development of organizational policy/plan
- Education of labor and delivery nurses, OBs, midwives, neonatologists, perinatologists, NICU team
- Education to parents prior to delivery
REFERENCES


OTHER RELEVANT ARTICLES

- Philip, A.G., & Saigal, S. (2004). When should we clamp the umbilical cord? Neoreviews, 5, pp142-152