### Blood Circulation & Umbilical Cord Clamping in Newborns

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#### PICOT Question:
In newborns, what is the effect of blood circulation on delayed umbilical cord clamping, (30 seconds-5 minutes), compared with early umbilical cord clamping, (15-20 seconds)?

#### Case Study:
An 18 year-old primagravida female, presented to the maternity ward at 39 weeks gestation and in fast labor. She states that her contractions are ongoing with barely any time in between, and she feels the urge to push. The doctor diagnosed her with precipitous labor. The primagravida wanted her birth plan to involve receiving an epidural to allow time to prepare for delivery and opt for delayed umbilical cord clamping. However, in this situation, the physician recommended immediate delivery of neonate and immediate clamping of the cord because of spontaneous precipitous labor.

**Decision:** The physician proceeds with immediate delivery and early cord clamping when the patient is dilated to a nine with 100% effacement. The patient reluctantly agreed to deliver without an anesthetic. The patient delivered vaginally after eight minutes of pushing.

**Outcomes:** The patient had a successful vaginal delivery, and her newborn had no signs of jaundice or hypovolemia. The patient did not hemorrhage. The newborn had an APGAR score of 8 at one minute and an APGAR score of 10 at five minutes.

#### Interventions:
The interventions in this study are delayed umbilical cord clamping and early umbilical cord clamping. The risks and benefits of each are discussed, and it is debated which is the best decision. Education is given about both, and it is up to the pregnant woman to decide what she thinks is best for her newborn.

#### Results:
Delayed clamping of the umbilical cord is more beneficial to newborns because if it is clamped immediately after birth, there is a higher risk of hypovolemia (the liquid portion of the blood plasma is too low) (1). As soon as the cord is clamped, there is no way for any more oxygenated blood to reach the neonate, so the circulating blood volume will decrease in the infant (2). Studies have shown that newborns receive about 80 mL of blood from the placenta up to a minute after birth by the umbilical cord, and it can possibly reach up to 100 mL 3 minutes after birth (3). The only downfall seen in delayed umbilical cord clamping is the neonate may need phototherapy because of the increased risk of jaundice (4). Delayed cord clamping is most beneficial in the reduction of intraventricular hemorrhage (5).

#### References: