

Delayed Cord Clamping and Umbilical Cord Milking at Birth

SIDDARTH RAMJI

From the Department of Neonatology, Maulana Azad Medical College, New Delhi, India. siddarthramji@gmail.com

Early cord clamping could deprive the neonate of about a quarter of its blood volume and iron (upto 50 mg/kg). World Health Organization recommends delaying cord clamping (defined variably as till pulsations cease or upto 120-180 s) as the standard of care in the delivery room for newborns not needing resuscitation. The benefits of delayed cord clamping include improved iron status and hemoglobin, reduced need for blood transfusion, and improved hemodynamic stability after birth. Yet, there appears to be concerns about practicing delayed cord clamping, especially in neonates needing resuscitation. In such situations, an alternative that could provide the newborn with the desired additional blood is Umbilical Cord Milking (UCM). In this issue of *Indian Pediatrics*, Kumar, *et al.* [1] report the hematological effects of UCM compared to early cord clamping in preterm (32-36 wk) neonates. While they reported higher ferritin and hemoglobin in the UCM group at 6 weeks postnatal age, they also noted with concern the higher rates of jaundice needing phototherapy with UCM. Upadhyay, *et al.* [2] from the same center have previously reported similar results in neonates >35 weeks, but did not note increased jaundice or the need for phototherapy in UCM group.

A systematic review of UCM in preterm neonates (<33 weeks) reported significantly higher hematocrit, and reduced risk of oxygen need at 36 weeks and intra-ventricular hemorrhage (IVH) [3]. Another systematic review of delayed cord clamping in neonates between 24-36 weeks (738 infants) reported similar hematological benefits of higher hematocrit and decreased blood transfusion, better hemodynamic stability, decreased risk of IVH and necrotizing enterocolitis (NEC) [4]. However, this analysis also noted higher peak bilirubin concentrations in those with delayed cord clamping (which did not apparently translate to increased phototherapy need). It appears that provision of additional placental blood at birth in preterm neonates is associated with higher bilirubin levels, but may not be a matter of concern as it does not translate to increased interventions for hyperbilirubinemia. Patel, *et al.* [5] demonstrated the benefits of UCM even in neonates <30 weeks. In their study amongst preterm neonates (<32 weeks) delivered

by cesarean section, UCM resulted in better systemic blood flow than those with delayed cord clamping.

There is considerable body of evidence to support the practice of providing additional blood volume to term and preterm neonates not needing resuscitation at birth by delaying cord clamping. Similar results have been observed even amongst neonates where umbilical cord milking was done. In neonates delivered by cesarean section or amongst those needing resuscitation, umbilical cord milking may be a more practical option for providing the additional blood volume to the neonate resulting in better hematologic parameters and hemodynamic stability. In under-resourced countries where maternal anemia is highly prevalent, delayed cord clamping or UCM could decrease anemia in early infancy, and also possibly improve survival in preterm infants by decreasing morbidities such as IVH and NEC. There should be a concerted effort at implementing such low cost but potentially useful strategy in the delivery room settings globally, but more so in regions where there is high neonatal mortality.

Funding: None; *Competing interest:* None stated.

REFERENCES

1. Kumar B, Upadhyay A, Gothwal S, Jaiwal V, Joshi P, Dubey K. Umbilical cord milking and hematological parameters in moderate to late preterm neonates: A randomized control trial. *Indian Pediatr.* 2015;52:753-7.
2. Upadhyay A, Gothwa S, Parihar R, Garg A, Gupta A, Chawla D, *et al.* Effect of umbilical cord milking in term and near term infants: Randomized control trial. *Am J Obstet Gynecol.* 2013;208:120.e1-6.
3. Al-Wassia H, Shah PS. Efficacy and safety of umbilical cord milking at birth: A systematic review and meta-analysis. *JAMA Pediatr.* 2015;169:18-25.
4. Rabe H, Diaz Rossello JL, Duley L, Dowswell T. Effect of timing of umbilical cord clamping and other strategies to influence placental transfusion at preterm birth on maternal and infant outcomes. *Cochrane Database Syst Rev.* 2012;8:CD003248.
5. Patel S, Clark EAS, Rodriguez CE, Metz TD, Abbaszadeh M, Yoder BA. Effect of umbilical cord milking on morbidity and survival in extremely low gestational age neonates. *Am J Obstet Gynecol.* 2014;211:519.e1-7.