

## Research Media Watch:

Anil Lohar

### Timing of umbilical cord clamping among infants born at 22 through 27 weeks' gestation

To investigate the safety, feasibility and efficacy of delayed cord clamping (DCC) compared with immediate cord clamping (ICC) at delivery among infants born at 22 to 27 weeks' gestation

A recent Cochrane review (15 trials, 738 preterm infants) showed that DCC, compared with immediate cord clamping (ICC), resulted in higher hematocrits, less exposure to blood products, lower incidence of necrotizing enterocolitis and an almost 50% lower risk of intraventricular hemorrhage (IVH). However, the majority of evidence supporting DCC in preterm infants comes from infants >28 weeks' gestation and concerns that DCC will delay resuscitation and may worsen outcomes have precluded enrolment of infants born at lower gestational ages (GAs). This study was done to evaluate the safety and feasibility of DCC among infants born at 22 through 27 weeks' gestation. The secondary objective was to evaluate the potential efficacy of DCC in comparison with ICC in this subgroup of preterm infants.

A Randomized controlled trial conducted at a single academic hospital (The Ohio State University Wexner Medical Centre between August 2009 and December 2013. All women with singleton pregnancies between 22.5 and 27.6 weeks' gestation were randomly assigned to ICC (cord clamped at 5 to 10 s) or DCC (30 to 45 s).

Forty mother–infant pairs were randomized. Infants in the ICC and DCC groups had mean gestational ages (GA) of 24.6 and 24.4 weeks, respectively. No differences were observed between the groups across all available safety measures, although infants in the DCC group had higher admission temperatures than infants in the ICC group (97.4 vs 96.2 °F,  $P = 0.04$ ). During the first 24 h of life, blood pressures were lower in the ICC group than in the DCC group ( $P < 0.05$ ), despite a Three fold greater incidence of treatment for hypotension (45% vs 12%,  $P < 0.01$ ). Infants in the ICC group had increased numbers of red blood transfusions (in first 28 days of life) than infants in DCC group ( $4.1 \pm 3.9$  vs  $2.8 \pm 2.2$ ,  $P = 0.04$ ).

So Among infants born at an average GA of 24 weeks', DCC appears safe, logistically feasible, and offers hematological and circulatory advantages compared with ICC.

**Source:** Journal of Perinatology (2016) 36, 35–40

**Comments:**

Study results suggest that a brief delay in cord clamping among infants with an average GA of 24 weeks is logistically feasible, appears to be safe, and offers a number of hematological and circulatory benefits. The results of this pilot study justify the need for a larger multicenter study to evaluate the potential benefits of enhanced placental transfusion among infants born at <28 weeks' gestation.

## Effectiveness of hand hygiene interventions in reducing illness absence among children in educational settings: a systematic review and meta-analysis

Young children are particularly susceptible to respiratory tract (RT) and gastrointestinal (GI) infections. While usually self-limiting, these highly infectious illnesses spread quickly in semi-closed settings such as schools. Infections affect child health, causing missed educational opportunities which may have a detrimental effect on educational outcomes, lost productivity and days off work for school staff.

A systematic review and meta analysis conducted to establish the effectiveness of hand washing in reducing absence and/or the spread of respiratory tract (RT) and/or gastrointestinal (GI) infection among school aged children and/or staff in educational settings.

Randomised-controlled trials (RCTs) were conducted in the Setting Schools and other settings with a formal educational component in any country. Patients Children aged 3–11 years, and/or staff working with them. Interventions are hand hygiene component. Main outcome of study measures is Incidence of RT or GI infections or symptoms related to such infections; absenteeism; laboratory results of RT and/or GI infections

Eighteen cluster RCTs were identified; 13

school-based, 5 in child day care facilities or preschools. Studies were heterogeneous and had significant quality issues including small numbers of clusters and participants and inadequate randomisation. Individual study results suggest interventions may reduce children's absence, RT infection incidence and symptoms, and laboratory confirmed influenza-like illness. Evidence of impact on GI infection or symptoms was equivocal.

Despite updating existing systematic reviews and identifying new studies, evidence of the effect of hand hygiene interventions on infection incidence in educational settings is mostly equivocal but they may decrease RT infection among children. These results update and add to knowledge about this crucial public health issue in key settings with a vulnerable population.

**Source:** Arch Dis Child 2016; 101:42–50.

### Comments:

Interventions to improve hand hygiene in educational settings may reduce RT infection incidence among younger children. More robust, well reported studies are required, especially of multi component interventions.

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## **To evaluate and compare the efficacy of combined sucrose and non-nutritive sucking for analgesia in newborns undergoing minor painful procedure: a randomized controlled trial**

Neonates in the neonatal intensive care unit are subjected to frequent invasive and potentially noxious procedures this study was to evaluate and compare the efficacy of combined sucrose and non-nutritive sucking (NNS) for analgesia in newborn infants undergoing heel-stick procedures.

Randomized control trial was conducted in the neonatal intensive care unit of a tertiary care hospital over a period of 1 year. One hundred and eighty full-term neonates with birth weight >2200 g and age >24 h were randomized to one of four interventions administered 2 min before the procedure: 2ml of 30% sucrose (group I, n = 45) or NNS (group II, n = 45) or both (group III, n = 45) or none (group IV, n = 45). Primary outcome was composite score based on Premature Infant Pain Profile (PIPP) score.

Baseline variables were comparable among the groups. Median (interquartile range) PIPP score was 3 (2 to 4) in group III as compared with 7 (6.5 to 8) in group I, 9 (7 to 11) in group II and 13 (10.5 to 15) in group IV. Group III had significant decrease in the median PIPP score compared with other groups (P = 0.000). Median PIPP score also decreased significantly with any intervention as compared with no intervention (P = 0.000).

So, Sucrose and/or NNS are effective in providing analgesia in full-term neonates

undergoing heel-stick procedures, with the combined intervention being more effective compared with any single intervention

Scoring instructions for PIPP scoring

1. Gestational age assessment carried out for each neonate
2. Score the behavioural state 2 min before the potentially painful event by observing the infant for 15 s
3. Record the baseline heart rate and oxygen saturation
4. Observe the infant for 30 s immediately following the painful event. Score physiologic and facial changes seen during this time and record immediately
5. Record full PIPP score

Abbreviation: PIPP, Premature Infant Pain Profile

**Source:** Journal of Perinatology (2016) 36, 67–70

**Comments:**

Sucrose and NNS in combination are effective in providing analgesia in full-term neonates undergoing heel-stick procedures, with the combined intervention being more effective than any single intervention.