



Delayed Cord Clamping in VLBW Infants Reduces Intraventricular Hemorrhage

Cord Clamping At Birth

By Clementine Wallace

NEW YORK (Reuters Health) Apr 06 - Waiting 30 to 45 seconds before clamping the umbilical cord of very low birth weight (VLBW) infants -- less than 1500 grams -- seems to protect them against intraventricular hemorrhage and late-onset sepsis, researchers report in the April issue of Pediatrics.

"While countries in Europe tend to wait before clamping these children's umbilical cord, the current practice in the United States is to clamp it immediately after delivery," lead author Judith Mercer told Reuters Health. "There hasn't been a lot of research done in this country on delayed cord clamping, and most studies were limited by small samples."

Evidence is accumulating to suggest that, for VLBW infants, delaying cord clamping and lowering the newborn below the mother's level significantly increase the flow of blood from the placenta to the newborn, according to Mercer, from the University of Rhode Island in Kingston. In their paper, she and her colleagues note that waiting 30 to 45 seconds results in an 8% to 24% increase in blood volume.

"Immediate cord clamping may deprive these infants of essential blood volume, which might result in hypotension and in a poor perfusion of the tissues," Mercer added.

In this study, the primary aim was to compare the effects of delayed cord clamping (DCC) with immediate cord clamping (ICC) on the development of bronchopulmonary dysplasia and necrotizing enterocolitis in infants born before the 32nd week of gestation. The study involved 72 pregnant women who underwent either ICC at 5 to 10 seconds after birth, or DCC 30 to 45 seconds after delivery.

Outcomes showed no significant differences in either bronchopulmonary dysplasia or suspected necrotizing enterocolitis. On the other hand, unanticipated differences were seen between the ICC and the DCC groups in rates of intraventricular hemorrhage and late-onset sepsis.

These differences were significant in male infants ($p < 0.05$), but female infants did not exhibit the same advantage. Specifically, 2 of the 23 male infants in the DCC group had intraventricular hemorrhage compared to 8 of the 19 in the ICC group. No case of sepsis occurred among the 23 DCC boys, whereas 6 cases occurred among the 19 ICC boys.

The researchers note the "simplicity of the intervention" in improving outcomes of very preterm infants. The team is currently gathering data through the seventh month after delivery, Mercer said.

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Neurodevelopmental Outcomes of Immediate Cord Clamping

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Editor:

In the worldwide responses to Hutchon's letter, Tucker and Mcguire admit to evidence that delayed cord clamping (DCC) prevents blood transfusions that correct severe anemia, thus immediate cord clamping (ICC) increases the risk of severe anemia. Mermer cites many studies of DCC reducing anemia and Scagliotti reports that practicing DCC does indeed prevent infant anemia – that is readily treated with oral iron. A full placental transfusion supplies the term infant with enough iron to prevent anemia for one year. However, THE SEEMINGLY INNOCUOUS DIAGNOSIS OF INFANT ANEMIA PORTENDS A VERY OMINOUS DEVELOPMENTAL PROGNOSIS for the ICC child.

The multiple publications (1982 – 1991+) of Lozoff [1] show very strong correlation between infant anemia and learning disabilities, behavioural dysfunction, hyperactivity, aggression and attention deficit disorders in grade school children. Lack of mental achievement persists through high school, and treatment of the anemia does not appear to influence outcome. In 1999, Hurtardo [2] reported on a large population of grade school children whose infant blood counts were documented; they were subjected to a standard intelligence test:

“The effect of [infant] hemoglobin was significant after all covariates were entered into the equation [odds ratio (OR): 1.28; 95% CI: 1.05, 1.60]. Therefore, for each decrement in hemoglobin, risk of mild or moderate mental retardation increased by 1.28, even after we controlled for all other variables in the equation.” [2]

In Hutchon's second letter, he points out that immediate cord clamping (ICC) results in increased risk of IVH (Cochrane); IVH indicates high risk of permanent brain damage. Contrary to the authors' claim that there is insufficient evidence on the effect of DCC on neurodevelopmental outcomes in the longer term, there is ample evidence that ICC increases the risk of neurological and mental dysfunction, and that a normal placental transfusion (DCC) indicates high probability of the neonate having normal blood counts and a normal brain.

Given an epidemic of preterm birth [3] that includes immediate cord clamping (ICC is also widespread in term births), one would expect to find, in that same population, an epidemic of mental dysfunction, such as autism. It is, therefore, not surprising to find that cesarean birth (where ICC is quite routine) has a higher incidence of autism than vaginal birth. [4,5] The epidemics of autism and ICC are remarkably parallel, and the pathogenicity of ICC is not confined to the domain and standard of care of CESDI [6] mentioned by Hutchon. RCOG, SOGC and ACOG have promoted ICC for over a decade for cord arterial pH determination on compromised neonates, term and preterm, without mention of possible side effects. [7]

A thorough discussion of the role of ICC in cerebral palsy and hypoxic ischemic encephalopathy (HIE) follows Shah's [8] publication at the following BMJ web address:

<http://fn.bmjournals.com/cgi/eletters/89/2/F152#539>

The current available data on ICC not only make suggested further large trials of DCC unnecessary; they make them impossible. Scagliotti sensibly mentions the ethics of performing ICC. The authors' suggested further studies require the legal informed consent of the parents to perform this ICC / DCC experiment. The extensive injuries caused by ICC must be disclosed to parents, who would opt otherwise. There are no known hazards of physiological cord closure. Scagliotti's derision of thoughtless medical intrusion, large investigations and brilliant statistic programs puts the whole situation in proper perspective.

If the cord clamp is used routinely to amputate the normally functioning placenta, how many cases need to be recorded to provide adequate odds ratios, mean deviations and met-analysis to assess the statistical probability of injury to the child?

The cord clamp can be used without iatrogenic injury after the cord vessels have closed physiologically.

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