Cutting the cord: babies benefit from a delay

Research by Dr. Judith Mercer of the University of Rhode Island shows that babies who remained connected to their umbilical cord for longer had healthier blood days and months later.

Why is it common practice to cut the umbilical cord so swiftly? The main reason is for expediency. Also, people think that the neonatologist can ‘fix’ whatever is wrong with a newborn. Many studies are showing that these infants would do better if they received their cord blood before breathing and cord clamping.

Should an expectant mother be worried about the timetable of her birth? She should take steps to ensure that her infant will receive delayed cord clamping or cord milking at birth. The baby’s father can help to confirm that a delay happens at the birth.

Is a delayed clamping always better? Yes. This is basic blood volume that the infant was using for respiration in the uterus. S/he needs it after birth for independent respiration. Also, it is filled with many stem cells that have been shown to help with healing the newborn and may be extremely important over one’s lifetime.

Can a mother request a delay? Yes, she can and she should.

Are there still risks associated with a delay? No. We have three meta-analyses involving delayed cord clamping with term infants, preterm infants and both with cord milking. A meta-analysis combines data from many studies. None of the meta-analyses, or any of the individual studies show harm to the infants.

When a baby is born, how quickly should the midwife cut the umbilical cord? For decades, scientists and health care professionals have had very different views on exactly when this procedure should happen.

Normal western practice has been to cut the baby’s cord within a minute of birth. In the US, it tends to be quicker, unless the baby is premature. In the UK, the current advice is to cut it after a minute.

Striking new evidence suggests that a five-minute delay in cutting the umbilical cord could be very beneficial to the health of newborn babies. The recent study by Dr. Judith Mercer, from the University of Rhode Island in the US, could have major implications for the way we deliver babies in the future.

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Effects of a five minute delay with infants placed on the maternal abdomen

Mercer and her team compared a random sample of babies that had an immediate cord clamping operation (ICC, within 20 seconds) with babies that continued to receive oxygen-rich blood via an intact umbilical cord. In these cases, the cord was not severed until five minutes after the birth, allowing ongoing placental transfusion of vital red blood cells. If the provider felt they could not wait, they were instructed to milk the cord.

Results two days later

Her researchers monitored the effects of the two different strategies. Even 48 hours later, the babies that experienced delayed cord clamping (DCC) had significantly higher blood levels of the protein haemoglobin. Haemoglobin contains iron, a critical element for early development. A higher haemoglobin
level is usually a proxy for more blood volume. During birth, babies’ lungs must change in function from an organ that produces fluid to one that allows gas exchange. To facilitate this, the proportion of blood flowing to the lungs increases from 6–10% to around 45%. ICC reduces the amount of blood available to the newborn, meaning that the baby’s body draws blood from other reservoirs, potentially at the cost of other organs, which may consequently underperform.

One of the reasons that some of those who currently practise ICC do so is to minimise the risk of severe jaundice in the baby (80% of all newborns experience some jaundice). This is caused by excess bilirubin in the blood. Bilirubin is naturally produced by the body as it breaks down old red blood cells and is protective at normal newborn levels. However, excessively high levels can be extremely harmful, and may even lead to brain damage. Some doctors had been worried about other possible harmful effects on the newborn’s blood but Mercer’s experiments (and others) found no evidence that DCC increased the risk of conditions such as polycythaemia, hyperviscosity, or transient tachypnea, all of which, like jaundice, are supposedly avoided by implementing ICC.

Mercer’s study found no increase in bilirubin levels in two-day old babies who had undergone DCC, suggesting that DCC does not increase the risk of hyperbilirubinemia (excessively high levels of bilirubin).

FOUR MONTH RESULTS
At four months, infant ferritin levels were measured. Ferritin is the main iron-storage protein in the body so measuring ferritin is a good indication of iron levels. They also underwent MRI scanning using a novel myelin-imaging technique that can quantify the amount of myelin (wrapping of nerve cells) in the brains of newborns. Mercer’s team was looking for any association between higher ferritin levels and myelin content. All MRI scans were done in the evening during non-sedated sleep.

Infants in the DCC group had higher ferritin levels and a positive relationship between ferritin and myelin content in areas that are important for sensory processing and motor function. It is essential for the formation of oligodendrocytes in the brain. Oligodendrocytes are cells that are key for myelin formation, the development of the fatty sheath around brain cells that is essential to their function.

While questions about the timing of cord clamping linger, in premature deliveries DCC has been shown to lower the risk of bleeding in the brain as well as the need for transfusions. Preterm infants are very susceptible to the harmful effects of low blood pressure in the first 24 hours of life. DCC has been shown to raise blood pressure in these tiny babies during that critical period.

Although the long-term effects of ICC on the infant were not studied until recently, Mercer showed an advantage to premature infants at 18 months of age in an earlier study and Dr Olia Anderson from Sweden found advantages for children at 4 years of age who had DCC as babies. Many experienced midwives had been advocating DCC in order to promote a more relaxed, natural transition from the pre-natal world. In the past this attitude has been frowned upon in some hospital settings, says Mercer.

The importance of the timing of cord clamping is shown by the physiological benefit of allowing just three minutes allows an extra 100 ml of blood to travel along the cord to the baby. Relatively speaking, this is equivalent to just under 2 litres of blood for an adult; the effect of leaving the cord intact at such a vital time could be very significant. ‘Birth is perhaps the most dramatic physiologic event any human will experience,’ says Mercer. ‘How it is conducted may have effects that will last a lifetime. Evidence is building that the current practice of extracting immediate cord clamping is creating harm.’

More information: http://cordclamping.info/

LACK OF IRON
Mercer’s research is supported by other recent studies across the world that hint at DCC’s far-reaching benefits. It has been suggested that higher iron content in early life is connected to better coordination and social skills in later life and that developmental issues like ADHD are linked to less brain myelin.

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