

Could waiting 2 minutes improve how newborns recover from heart surgery?

July 15 2010

A newly funded study is set to determine whether waiting two minutes to clamp a newborn's umbilical cord after delivery could improve how well he or she recovers from corrective heart surgery.

Most physicians typically clamp and cut the [umbilical cord](#) immediately following delivery. Some physicians advocate for delaying the clamping of the baby's umbilical cord, thereby increasing the flow of blood from the placenta to the child. The practice of delayed umbilical cord clamping has been shown to improve hematocrit levels, leading to an increased number of oxygen-carrying [red blood cells](#) throughout the body.

Hematocrit levels are an important factor during surgery and blood transfusions are often required to replace blood lost during complicated procedures. This is especially true in children with critical congenital heart disease.

"Babies born with critical congenital heart disease often require multiple blood transfusions during corrective heart surgery due to the complexity of the surgery and the babies' small size," said Carl Backes, Jr., MD, Neonatology fellow at Nationwide Children's Hospital. "However, data suggests that surgical outcomes are improved when fewer blood transfusions are performed."

A \$125,000, two-year grant from the American Heart Association will allow Dr. Backes to examine whether delayed umbilical cord clamping

could have a positive impact on surgical outcomes.

"We suspect that delayed umbilical cord clamping following delivery will decrease the need for blood transfusions in this at-risk population," said Dr. Backes. "Given the growing body of evidence suggesting that blood transfusions during or after cardiac surgery is associated with acute and delayed adverse effects, we hope to evaluate the potential role for adding delayed cord clamping to existing blood conservation programs at Nationwide Children's Hospital."

When a baby being cared for prenatally at Ohio State University Medical Center (OSUMC) is identified in the womb as having a prenatal heart lesion, Dr. Backes and Nationwide Children's cardiologist Timothy Hoffman, MD, will determine whether the baby has critical [congenital heart disease](#) likely to require surgery within the first month of life. If so, Dr. Backes works collaboratively with obstetricians at OSUMC to coordinate the timing of the umbilical cord clamping. This project serves as the first federally funded research collaboration between The Ohio State University Maternal Fetal Medicine Program, the section of Neonatology and Cardiology and Cardiothoracic Surgery at Nationwide Children's.

"Hopefully this multidisciplinary pilot study will serve as the basis for future collaborations in both research and clinical arenas," said Dr. Backes.

Each baby's umbilical cord will either be clamped right away or the clamping will be delayed for 120 seconds post-delivery. The research team will then monitor the children's progress for two years, comparing differences between the groups.

"Our group will examine whether potential differences in blood product exposure between the two groups, and most importantly, if those

differences are associated with meaningful clinical outcomes," said Dr. Backes. "We suspect that delayed clamping has additional benefits other than improving hematocrit levels, and we may discover something new about how the body helps heal itself."

Provided by Nationwide Children's Hospital

Citation: Could waiting 2 minutes improve how newborns recover from heart surgery? (2010, July 15) retrieved 24 April 2024 from <https://medicalxpress.com/news/2010-07-minutes-newborns-recover-heart-surgery.html>

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