



Cooling therapy benefits oxygen-deprived newborns

By MARK ANDERSEN / Lincoln Journal Star | Posted: Thursday, November 19, 2009 12:30 pm

Two sons, both born with their brains starved of oxygen, entered the world through a Lincoln hospital more than a decade apart.

The first, Austin, amazed his parents, Kurt and Kathy Polzin, by hitting milestones doctors had said were beyond his reach, such as surviving that first day after life support was withdrawn.

Austin needed a tracheotomy, a G-button and was confined to a wheelchair, his mom said, but he displayed emotion and so much personality.

Austin, still missed, died at age 3.

Gabriel, the son of Sara Robbins and Bernard Fisher, arrived by emergency C-section on Sept. 5 and registered a disturbing Apgar score of 1 on a scale of 1 to 10.

Two weeks ago, Gabriel stared alertly from a nurse's arms upon a world of possibility as his folks held hands over a table and told their story.

On the afternoon of Gabriel's birth, his mother said, she was lying in recovery when her crying mother entered to say the baby boy was sick and they didn't know what would happen.

Fisher recalled people telling him they were going to cool the baby's inner core, "and about everything else was doctor talk."

Lori Ketterl, nurse manager of the BryanLGH Medical Center neonatal intensive care unit, noticed a promising sign when Gabriel began sucking on his ventilator tube.

And now, Fisher said, "He's starting to laugh."

Gabriel coos. He lifts his head. He mows down developmental mileposts like a juggernaut.

It's not so much the years that separate these stories as it is a few degrees Fahrenheit.

Austin was swaddled and warmed in those precarious first hours of his life, the standard practice then as it is now.

Gabriel spent his first days wearing a foil-wrapped cooling helmet, his brain chilled to 93 degrees.

Cold slows metabolism, giving exhausted brain cells a chance to fight the secondary onslaught that starts about six hours after the loss of oxygen.

Cold normally isn't good for newborns, but for the one or two per 1,000 full-term infants that are born oxygen-deprived, a few days of cold immediately after birth can boost the chances of a normal life by as much as 50 percent. It's the first beneficial therapy for these children in decades, and when it works, it can truly be said to have changed an entire life.

Adopted only recently as the standard of care, the technique still has issues unsettled.

BryanLGH uses the FDA-approved Olympic Cool-Cap to selectively cool an infant's head. Gabriel was the hospital's first customer.

Saint Elizabeth Regional Medical Center uses a whole-body cooling blanket to chill babies.

Experts quibble about the relative benefits of each technique, but they agree on the principle.

Death and long-term injury, including cerebral palsy, remain a danger for these babies, but now they have a better chance.

The technique, Ketterl said, "gives this kid the very best life going forward."

Oxygen deprivation at birth can result from an umbilical cord getting squeezed or from a placenta prematurely separating from the

uterus.

In Austin's case, it was a blood clot in the umbilical cord.

In Gabriel's case, it was ingested meconium, his mom said.

In both cases, brain cells died from lack of oxygen. Gabriel's initial brain waves showed abnormalities.

But even more threatening than oxygen deprivation is the second assault, when exhausted brain cells are vulnerable to the body's chemical attack.

The first attempt at cooling therapies for oxygen-deprived babies was made in the 1950s following animal studies in the 1940s, said Dr. B.J. Wilson, medical director of the Saint Elizabeth neonatal intensive care unit.

But studies on premature babies showed warmth was better. That's why cooling therapy is useful only for full-term babies.

Studies involving cooling weren't renewed until the 1990s, and it has been only recently that evidence has advanced an idea that flies in the face of what everybody once accepted as common sense.

Kathy Polzin said she'll never know if cooling therapy would have benefited Austin.

And she never wants anyone to consider him with pity.

"That's not who he was," she said. "We loved him dearly for who he was and what he was able to do.

"We were very proud of him."

They cherish a picture of Austin with his brother Alex, now 8. In it, Austin holds up his head, as if to show the way.

"If something like this will help another family," Kathy Polzin said, "that's what we hope for."

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