

Posted on Tue, May. 24, 2005

Blood test may help screen for brain injuries

The Associated Press

By Jennifer C. Yates

PITTSBURGH -- Fussy or vomiting babies brought to the emergency room could have the flu or a stomach virus and be better in days or weeks. Or maybe it's a brain injury, which left undetected could have lifelong consequences.

Doctors at Children's Hospital of Pittsburgh are hoping that, one day, there will be a way to quickly tell the difference. Led by Dr. Rachel Berger, researchers are working on a blood test to detect the chemical activity in the brain that occurs once the brain is injured.

"You can't possibly pick out of the hat, 'This is the inflicted brain-injured kid,'" said Berger, a doctor at the hospital's Child Advocacy and Injury Research Center. "Most people die of, not the impact, but ... what happens in the brain afterwards."

When the brain is injured -- such as when a head hits a windshield in a car accident or a baby is violently shaken -- the impact sets off a series of chemical reactions in the brain. Those chemicals mix with a person's blood and leave markers that could be detected in a blood test, doctors say.

When children, or adults, are taken to an emergency room, there are standard blood and urine tests that can be used to assess many parts of the body. But to assess brain injury, doctors now must order a brain scan.

Dr. Ronald Hayes, a professor of neuroscience and director of the Center for Traumatic Brain Injury Studies at the University of Florida, said brain scans and MRIs don't give any biochemical information, and can sometimes be inaccurate.

"In fact, there is really no satisfying way to diagnose brain injury," Hayes said.

Also, it's dangerous and expensive to use brain scans as standard-operating procedure on children, because the same dose of radiation is used to scan adults and children, Berger said. It would be much more practical to do a quick blood test, then a scan if certain chemicals are present and indicate there is brain injury, she said.

Approximately a half-million children 14 and under are taken to U.S. emergency rooms each year with traumatic brain injury, according to the Centers for Disease Control.

In a 2004 study, Berger and other researchers looked at the records of children less than 3 years old who were admitted to Children's Hospital of Pittsburgh's emergency room with brain injuries. The researchers found that 23.6 percent of the children over about a five-

year period were classified as abused, and that the caretakers of abused children were more likely to report to emergency officials that the child had no trauma or had only minor trauma.

The most common kind of abuse in young children is shaken baby syndrome, when an infant is shaken violently enough that his head flails back and forth. Such an injury can cause bleeding in the brain, brain swelling and other possibly fatal complications.

Emily Weston knows firsthand the damage that such an injury can inflict. Weston adopted a 3-month-old relative after the infant was violently shaken, causing severe brain damage. Emily Bonita Weston, called Nita by her family and friends, is now 3 and is blind and a quadriplegic.

Weston said no one ever determined what exactly happened to the girl -- the mother blamed the father, the father blamed the mother.

Nita sees a myriad of specialists every three to six months. Weston said she thinks most people don't realize how dangerous shaking a baby can be.

"She'll be like this for the rest of this life," Weston said. "She functions on a 3-month-old level and she'll always be that way.