Similar neuro outcomes in preterm infants with low-grade brain bleeding as infants with no bleeding

March 18 2013

A new study from researchers at UH Rainbow Babies and Children's Hospital and other centers suggests that preterm infants with a low-grade bleeding in the brain may have similar neurodevelopmental outcomes as infants with no bleeding. The study appears online at *JAMA Pediatrics*.

The study's lead author Allison Payne, MD MS, a neonatologist at UH Rainbow Babies and Children's Hospital and instructor at Case Western Reserve University School of Medicine, said, "The results are important because it is a large multi-center study showing different results than a recent study that did find differences in outcomes at 2 years of age for babies with PIVH. Our study's results are similar to those reported by other international cohorts."

The bleeding is called periventricular-intraventricular hemorrhage (PIVH), a condition that can occur in preterm babies. Dr. Payne and her colleagues said that although the presence of severe PIVH strongly correlates with adverse motor and cognitive outcomes, "outcomes of survivors with low-grade PIVH (grade 1 or 2) are less fully understood despite accounting for 50 percent to 80 percent of all PIVH cases."

In this study, the researchers analyzed 1472 extremely preterm infants admitted to 16 pediatric medical centers, including UH Rainbow Babies and Children's Hospital, from 2006 to 2008 who survived to 18-22 months and had at least one cranial ultrasonography performed during

their stay.

In total, 451 infants were diagnosed with PIVH, of which 31 percent were classified as having grade 1 PIVH, 29 percent as having grade 2, and 40 percent as having grade 3 or 4. Infants with grade 1 or 2 PIVH did not have an increased incidence of poor neurodevelopmental outcomes at 18-22 months compared with infants without PIVH, even after multivariate analysis controlling for potential confounders, including the use of antenatal and postnatal steroids.

Compared with low-grade hemorrhage, severe (grade 3 or 4) hemorrhage was significantly associated with cognitive deficits and language delay, as well as an increased risk for poor nonsensory outcomes (including cerebral palsy) apart from mild language impairment and severe cognitive impairment.

The researchers caution that high-prevalence, low-severity disabilities, such as attention deficit/hyperactivity disorders, specific neuropsychological deficits, and behavioral problems may gradually emerge over the years. "It is not clear what contribution low-grade PIVH may have to these more subtle disabilities," said Dr. Payne. She plans to continue to study these children when they reach school age.

More information: JAMA Pediatr. 2013;():1-9. doi:10.1001/jamapediatrics.2013.866 , archpedi.jamanetwork.com/artic… px?articleid=1659617

Provided by University Hospitals Case Medical Center