G6PD Deficiency Tied to Necrotizing Enterocolitis

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PHILADELPHIA — Glucose-6-phosphate dehydrogenase deficiency may be a risk factor for necrotizing enterocolitis in infants, Dr. David Schutzman said at the annual meeting of the Eastern Society for Pediatric Research.

He presented a retrospective study of 16 very-low-birth-weight infants with necrotizing enterocolitis of Bell's stage II or greater. The study compared rates of glucose-6-phosphate dehydrogenase (G6PD) deficiency in these infants with rates seen in all babies weighing less than 2 kg admitted to the neonatal intensive care unit over a 16-month period, and to the hospital's entire birth cohort over a 3-month period.

Among the 16 infants with necrotizing enterocolitis, 5 (31%) were G6PD deficient. This was significantly greater than the 9 (5%) that was seen in the NICU cohort of 170 babies weighing less than 2 kg. Having G6PD deficiency conferred an eightfold increase in risk for developing necrotizing enterocolitis, said Dr. Schutzman, chief of neonatology at the Albert Einstein Medical Center, Philadelphia.

The difference was even more pronounced when he compared the group that had necrotizing enterocolitis with the entire birth cohort of 675. The prevalence of G6PD deficiency in the large group was only 4%, with 29 cases; when comparing these two groups, those with the deficiency were at a 10-fold increased risk of developing necrotizing enterocolitis.

"We did not find any significant associations with any maternal factors, such as maternal age, exposure to antenatal steroids or antibiotics, or mode of delivery," Dr. Schutzman said. There was a nonsignificant association between maternal hypertension and G6PD deficiency.

Similarly, there were no significant associations between the enzyme deficiency and any infant demographics, with one exception: babies with G6PD deficiency were slightly, although not significantly, smaller for gestational age than those without the deficiency.

Dr. Schutzman had previously observed a seeming association between the onset of necrotizing enterocolitis and transfusion. The review showed a nonsignificant association between these factors. However, there were no significant associations between the development of necrotizing enterocolitis and any infant feeding patterns (age at which feeds began, calories consumed, change in feed, or feeding difficulties).

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DR. SCHUTZMAN

Clinical outcomes for necrotizing enterocolitis were significantly worse among those with G6PD deficiency, he said. All of the 11 infants without the deficiency survived. Three of the five with the deficiency died. "Two had extremely fulminate cases and progressed from the onset of symptoms to death within a few hours. The third had an equally fulminate course and was initially stabilized, but died a few months later due to short gut syndrome."

A study has shown "black trauma victims with a deficiency had a significantly increased incidence of sepsis compared to nondeficient victims. The G6PD deficiency seems to alter monocyte function and decrease IL-10 response," he said. ■