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EPO in very preterm infants does not improve neurodevelopmental outcomes at two years

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In a study appearing in the May 17 issue of *JAMA*, Giancarlo Natalucci, M.D., of the University of Zurich, Switzerland, and colleagues randomly assigned 448 preterm infants born between 26 weeks 0 days' and 31 weeks 6 days' gestation to receive either high-dose recombinant human erythropoietin (rhEPO) or placebo (saline) intravenously within 3 hours, at 12 to 18 hours, and at 36 to 42 hours after birth.

Although outcome in very preterm infants has improved in recent decades, they still experience significant long-term neurodevelopmental delay. Among several pharmacological candidates to prevent brain injury or improve development, EPO has been shown to be among the most promising. An association has been reported between early high-dose rhEPO and a reduced incidence of white and gray matter injuries assessed by cerebral magnetic resonance imaging in a group of very preterm infants.

Among the preterm infants in the study (average gestational age, 29 weeks; average birth weight, 1,210 g [2.7 lbs.]), 228 were randomly assigned to rhEPO and 220 to placebo. Neurodevelopmental outcome data were available for 365 (81 percent) at an average age of 23.6 months. The researchers found that cognitive development, as assessed with the Mental Development Index, was not significantly different between the rhEPO group and the placebo group. No differences were found between groups in secondary outcomes such as motor

development, cerebral palsy, hearing or visual impairment, and anthropometric growth parameters.

"To the best of our knowledge, this study evaluated the largest population to date of very preterm infants treated with high-dose rhEPO during the first days of life. It is possible that rhEPO does not have a neuroprotective role," the authors write.

"Follow-up for cognitive and physical problems that may not become evident until later in life is required."

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