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Erythropoietin in Neonates with Perinatal Asphyxia Undergoing Therapeutic Hypothermia—A Prospective Cohort Study

Charki, Siddu [✉](#); Patil S.V.; Vijayakumar S.; Kolkar, Yalagurswamy[Save all to author list](#)^a Department of Pediatrics, BLDE (DU) Shri B. M. Patil Medical College Hospital and Research Centre, Vijayapura, Karnataka, IndiaFull text options [v](#) Export [v](#)**Abstract**

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Abstract

Aims: To assess the safety and feasibility of erythropoietin (EPO) in asphyxiated neonates undergoing therapeutic hypothermia (TH). **Subjects and methods:** This study enrolled 60 neonates with HIE undergoing TH. 30 neonates were divided into EPO with TH group, where neonates received EPO (dose), at a dose rate of 1000 IU/kg/48 hours, for four doses and the remaining 30 neonates undergoing TH were into control group. Magnetic resonance imaging brain was undertaken between 10 and 14 days of life in surviving neonates. The Bayley Scales of Infant (BSI) Development IV was performed at regular intervals up to the age of 12 months. **Results:** Amplitude-integrated electroencephalogram (aEEG) showed burst suppression (19% vs. 11%), low voltage (10% vs. 4%), and flat trace (7% vs. 3%) in control group in comparison with EPO concurrent with TH group which was statistically significant. Brain magnetic-resonance imaging (MRI) done at 12 days (± 2 days) showed significant brain injury patterns such as severe brain injury (4% vs. 9% $P = .05$) and regional specific HIE (7% vs. 13%, $P = .03$) in control group of only TH neonates. At 12 months, neurodevelopment outcomes in EPO with TH group neonates showed a favorable outcome. **Conclusion:** rhEPO concurrent with TH in HIE neonates resulted in significantly less severe brain injuries in MRI brain in HIE neonates. aEEG changes were less statistically significant in EPO with TH group with favorable neurodevelopmental outcomes at 12 months of age. © 2024 National Neonatology Forum.

Author keywords

asphyxiated; erythropoietin; neonate; Therapeutic hypothermia

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