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만성 투석 중인 소아에서 주사용 철분제제 요법

가천의과학대학교 길병원 소아과[1], 서울대학교병원 소아과[2]

조희연[1] · 최현진[2] · 하일수[2] · 정해일[2] · 최 용[2]

Intravenous Iron Supplementation in Children on Chronic Dialysis

Hee Yeon Cho[1], Hyun Jin Choi[2], Il Soo Ha[2], Hae Il Cheong[2], Yong Choi[2]

Department of Pediatrics Gachon University of Medicine and Science Gil Medical Center[1]
Department of Pediatrics Seoul National University Children's Hospital[2]

Background : Parenteral iron therapy is an accepted adjunctive management of anemia in end-stage renal disease (ESRD) on dialysis. Limited information is available on experiences of intravenous (i.v.) iron treatment in children. In this study, iron sucrose was administered i.v. to determine its effect, the factors predicting outcome, and safety in children on chronic dialysis.

Methods : Twenty-one children whose serum ferritin levels were less than 100 ng/mL or transferrin saturations (TSAT) were less than 20% were enrolled. In 12 children on peritoneal dialysis (PD group), the drug was infused i.v. as 200 mg/m^2 ($\leq$200 mg) at week 0, 2, 4, and 6. In 9 children on hemodialysis (HD group), it was given i.v. as 8 weekly doses of 3mg/kg ($\leq$100 mg) through week 0-7.

Results : After treatment, serum ferritin levels increased significantly in both groups, and TSAT rose significantly in PD group. However, Hgb level did not rise significantly in both groups. Children with baseline hemoglobin (Hgb) less than 10 g/dL or baseline TSAT less than 20% showed significantly higher rise of Hgb after i.v. iron treatment. To the contrary, those with higher baseline Hgb and TSAT levels displayed higher rise in serum ferritin after the treatment. Although no serious adverse event occurred, TSAT levels exceeding 50% were noted in 6 patients in PD group. This suggests that 3 mg/kg/week of i.v. iron sucrose can be used safely in children on chronic HD, but 200 mg/m^2 every other week may incur excessive TSAT level in some patients on chronic PD.

Conclusion : This study demonstrates that in children with ESRD on dialysis, iron-sucrose can be safe and effective in increasing iron stores. This study was of relatively short duration and small number of patients and larger studies are required.