Optimal Propofol Infusion Rates

Haley Boehm1, BSN; Kim Camp2, BSN; Annette Fehr3, RN; Keith Hanson4, MD PhD; Venkedesh Raju5, MD

1,2,3,4,5 Children's Hospital of Illinois, Peoria, IL; 4,5 University of Illinois College of Medicine-Peoria

Introduction: Propofol continuous infusion is a common approach to pediatric procedural sedation. Debate exists regarding whether infusions should be started at low or high initial rates. Low rates risk patient movement and having to give additional drug, whereas high rates risk increased complications, in particular low diastolic blood pressure. The purpose of this retrospective chart review was to compare pediatric patients who received either low or high initial propofol drip rates during procedural sedation for magnetic resonance imaging (MRI).

Methods: We reviewed 120 randomly selected patient charts, 60 with a low initial propofol drip rate (≤70 mcg/kg/min) and 60 with a high initial rate (≥80 mcg/kg/min). For each we recorded age, initial and final drip rates, boluses given, total propofol dose, lowest diastolic blood pressure, and whether additional medications were needed. Since our true complication rate is low, we instead recorded events that required intervention by medical staff, such as transient obstruction or patient movement during the procedure. Groups were compared using standard statistical methods.

Results: Compared to patients with a high initial drip rate, patients with a low initial rate more often needed a propofol bolus and a subsequent increase in the rate. However, high initial rate patients still had slightly higher final drip rates and total propofol dosages. Low initial rate patients had more events requiring intervention by medical staff; the most common was patient movement during the procedure. No significant complications occurred in either group. There was no statistically significant difference in the lowest diastolic blood pressure between groups when controlling for patient age. There was no difference between groups in need for additional medications besides propofol.

Discussion: For pediatric procedural sedation, starting propofol infusions at higher rates (80 mcg/kg/min or more) is a safe option without increased risk of significant events or decreased diastolic blood pressure.