Title:

Anaesthesia using Target-controlled Infusion of Propofol during Elective Paediatric Surgery: Kataria versus Paedfusor Pharmacokinetic Model

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Abstract

Objectives: The aim of this study was to compare the effectiveness of these two different PK models of TCI in paediatric patients during induction and emergence in elective surgery.

Methodology: 38 patients of ASA I and II, aged 3-12 year-old, who underwent elective surgery under general anaesthesia, were randomised into two groups; Group Kataria (K) (n=19) and Group Paedfusor (P) (n=19). All patients initially received 1 µg/kg loading dose of intravenous (IV) remifentanil over 1 minute 15 seconds and followed with infusion at 0.1-1 µg/kg/min. Group K was subsequently started with Kataria model at target plasma concentration (Cpt) of 6 µg/ml, whereas Group P was started with Paedfusor model also at Cpt of 6 µg/ml. Success rate of induction and induction time were recorded. Anaesthesia for both groups was maintained at Cpt of 3-6 µg/ml. After completion of surgery, remifentanil infusion and TCI propofol were stopped. Recovery time and plasma concentration (Cp) of propofol at recovery were recorded.

Results: All patients in both groups were successfully induced at Cpt of 6 µg/ml and induction time was also comparable. Cp at recovery was significantly lower in Group K than Group P; [1.5± 0.1 vs. 1.6 ± 0.1; p=0.01]. However, there was no significant difference in time of recovery.

Conclusions: Kataria and Paedfusor PK models were comparably effective for induction of anaesthesia and recovery of paediatric patients. However, Cp at recovery was lower in Kataria than Paedfusor model.