

Abstract

Target controlled infusion (TCI) systems and computer data acquisition software are increasingly used in anesthesia. It was hypothesized that the use of such systems might allow retrieval of information useful to anticipate the effect-site concentrations of propofol at which patients would recover from anesthesia. The goal of the study was to identify variables related to propofol effect-site concentrations at recovery of consciousness (ROC). Sixteen patients with a Glasgow of 15, ASA 1 or 2, subjected to neurosurgical procedures, received TIVA with TCI propofol and remifentanyl. Data were collected every 5 seconds from Datex AS3 and Aspect A200XP (BIS). Effect-site TCI was used for propofol (initial effect target 5.0 μ g/ml) and for remifentanyl (initial plasma target 2.5 ng/ml). All clinical events were noted. Variables possibly related to propofol effect-site concentration at ROC were selected. Data are expressed as mean \pm SD. Effect-site propofol concentration at ROC was 1.3 ± 0.5 μ g/ml. A positive correlation was found between propofol effect-site concentration at ROC and: age (49.3 ± 17 years) ($P = 0.003$); mean remifentanyl dose during surgery (0.11 ± 0.05 μ g/kg/min) ($P = 0.003$); mean propofol dose during surgery (0.12 ± 0.03 mg/kg/min) ($P = 0.046$); and remifentanyl effect-site concentration at ROC (2.85 ± 2.06 ng/ml) ($P = 0.002$). Propofol effect-site concentrations were not correlated with: weight, height, LBM, duration of anesthesia, minimum BIS at induction (30.4 ± 6.8), time till minimum BIS (4.7 ± 2.2 min), mean and median BIS during surgery (38.2 ± 4.5 and 37.8 ± 5.3). BIS-related variables were not useful as ROC predictors. Only drug variables and age correlated with propofol effect-site concentrations at ROC.