Association between the Depth of Sevoflurane or Propofol Anesthesia and the Incidence of Emergence Agitation in Children: A Single-Center Retrospective Study

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In the present study, we investigated the hypothesis that the depth of general anesthesia affects emergence agitation (EA) in children in the early postanesthetic period. We retrospectively examined male and female children (aged 1-9 years) who underwent ambulatory surgery that lasted < 2 h. Various parameters, including the modified Yale Preoperative Anxiety Score (mYPAS) before anesthesia induction, the Pediatric Anesthesia Emergence Delirium (PAED) score at recovery time, and the value of the patient state index (PSI), were extracted from our electronic anesthesia database. The relationships between the PAED score and the mean PSI values were examined with univariate analyses. We also investigated the associations among the mean PSI, propofol anesthesia, age, mYPAS, the type of surgery, and the total amount of fentanyl divided by body weight with the PAED score using multiple regression analysis with interaction terms. There were 32 and 34 patients in the sevoflurane and propofol groups, respectively. The PAED scores (all patients: r = -0.34, p = 0.0048; sevoflurane group: r = -0.37, p = 0.036) were negatively correlated with the mean PSI, whereas the PAED score in the propofol group [r = 0.31 (-0.03, 0.59), p = 0.073] did not show a significant positive correlation with the mean PSI in the univariate analysis. The multiple linear regression analysis outcomes revealed that the mean PSI value was an independent clinical factor associated with the PAED score. Intraoperative electroencephalogram monitoring may be proved as one of the useful tools for the assessment of EA risks in children.