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Comparison of Remifentanil-Propofol and Sevoflurane for Preventing Cardiovascular Response and Quality of Recovery in Paediatric Otolaryngologic Surgery

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Abstract: As the practice of outpatient paediatric surgery advances, the search continues for anaesthesia that provides rapid smooth induction, stable patient haemodynamics, rapid emergence and minimal unpleasant side effects. Therefore, this study was designed to compare the haemodynamic changes, emergence and recovery characteristics of remifentanil-propofol (TIVA) and sevoflurane anaesthesia for adenoidectomy with bilateral myringotomy and insertion of tubes and/or tonsillectomy (ENT surgery) in children. Children aged 6.3 ± 1.6 years, undergoing elective ENT surgery, were randomly assigned to receive TIVA (n=15) and sevoflurane (n=15). In both groups, anaesthesia was induced with propofol and remifentanil and maintained either with infusion of propofol-remifentanil or sevoflurane with 50% N₂O in oxygen. End-tidal CO₂ concentration (ETCO₂) and oxygen saturation (SaO₂) were monitored and ventilation was controlled to maintain normocapnia. Heart rate and systolic-diastolic blood pressures were measured before and after induction, after tracheal intubation, at the beginning of the incision and at the end of the surgery. The time intervals from discontinuation of the anaesthetic, early emergence and recovery and the incidence of side effects were assessed. There were no differences in patients' demographics among the groups. Both of the anaesthesia methods could not provide stable haemodynamics at the time of intubation or at the start of surgery, but heart rates and blood pressures were significantly higher with sevoflurane (p<0.05). Times to restoration of spontaneous ventilation and extubation were significantly faster and mean scores of the quality of emergence scale were higher in the sevoflurane group than in the TIVA group (p<0.05). There was a significantly greater incidence of postoperative agitation in patients who received sevoflurane (100%) compared with those who received TIVA (46.7%) (p<0.05). It was concluded that TIVA provided less postoperative agitation and lower perioperative heart rates and blood pressures than sevoflurane-based anaesthesia.

Key Words: Remifentanil, propofol, sevoflurane, emergency quality, cardiovascular response

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