Safety and quality in children anesthesia for gastroscopy

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BACKGROUND AND GOAL OF STUDY

Finding combinations of drugs for safe anesthesia in children is still a challenge. The maintenance of respiratory and hemodynamic stability is the basis for safe anesthesia. The aim of this study was to compare and evaluate the use of ketamine-propofol versus remifentanil-propofol in children undergoing anesthesia for gastroscopy in terms of respiratory parameters and hemodynamic stability.

MATERIALS AND METHODS

The study included 90 children with ASA I risk, who were enrolled for elective endoscopy of the upper gastrointestinal tract under general anaesthesia (intravenous anesthesia with maintained spontaneous respiration and oxygen insufflation with a nasal cannula was used). The patients were randomized to one of the two groups: Group K consisted of children anaesthetized with propofol and ketamine, and Group R included children anaesthetized with propofol and remifentanil. Analysis included: saturation, apnea occurred, heart rate, systolic and diastolic blood pressure at four measurement points. At the end of gastroscopy, capillary blood gas was measured to evaluate pCO₂ and pO₂. Statistical analysis was performed using the STATISTICA 12 software.

Standard pharmacotherapy in both groups, including intervention doses

Group K	Group R
Induction: Ketamine i.v., 1.5 mg/kg bw Propofol i.v. dose 1.5 mg/kg bw	Induction: Remifentanil i.v., 0.1 µg/kg bw/min. Propofol i.v. 1.5 mg/kg bw
Maintenance of anaesthesia: Propofol infusion 6 mg/kg bw/h	Maintenance of anaesthesia: Propofol infusion 6 mg/kg bw/h + remifentanil infusion 0.1 µg/kg bw/min.
If necessary, an additional dose of propofol i.v. 0.5 mg/kg bw	If necessary, an additional dose of propofol i.v. 0.5 mg/kg bw

In 52.2% of children in both groups hyperoxygenation occurred

RESULTS

Apnea and/or desaturation occurred in 8.8% of patients in both groups, was not significantly different. These events did not require any intervention. Study groups did not differ in pCO₂ (44 ± 4 in Group K vs. 44.5 ± 5 in Group R, p = 0.98). Hypercapnia occurred in 16 (34.8%) of the subjects in Group K and in 18 (40.9%) in Group R, without affecting the child's behavior after regaining consciousness (p = 0.7). None of the children had bradycardia and/or hypotension requiring intervention. Hemodynamic parameters are shown in the graphs.

MEASUREMENT POINTS

- I - before induction
- II - after induction
- III - within 10 minutes after induction
- IV – in the recovery room

The partial pCO₂ in both groups

The heart rate at the measurment points, *p<0,05

The SBP at the measurment points, *p<0,05

CONCLUSIONS

Both methods of anesthesia were characterized by maintained respiratory function and hemodynamic stability.