

[GA1-43] COMPARISON OF DIFFERENT ANESTHETIC TECHNIQUES FOR PEDIATRIC ESOPHAGOGASTRODUODENOSCOPY

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Introduction:

The number of children requiring upper endoscopies has increased in recent years. While many anesthetic techniques have been used in this setting, none has demonstrated superiority in terms of respiratory complications or institutional efficiency. In this study, children presenting for upper endoscopy were randomized to one of three groups: native airway (non-intubated) with propofol maintenance, intubated with sevoflurane maintenance, or intubated with propofol maintenance. Groups were compared to investigate the incidence of respiratory complications and overall institutional efficiency.

Methods:

180 children aged 1-12 years (mean \pm S.D. 6.8 ± 3.3 yr) were enrolled. Children received a standardized inhalation induction. The remainder of the anesthetic was conducted according to randomization: Group IS (deep intubation, sevoflurane maintenance), Group IP (deep intubation, propofol maintenance), or Group NA (native airway with supplemental oxygen by nasal cannula, propofol maintenance). Patients randomized to the intubated groups were extubated deeply. The primary outcome variable was the incidence of respiratory complications including desaturation ($< 95\%$), severe desaturation ($< 85\%$), apnea, laryngospasm/airway obstruction, aspiration, or inadequate anesthesia requiring interruption of the procedure. Secondary outcome variables included institutional efficiency as measured by time spent in the different phases of care (anesthesia preparation, procedure, intraoperative, recovery and total perioperative care). The incidence of nausea, vomiting and opioid requirement in PACU was also evaluated. Categorical data were analyzed using the Chi-square test or Fisher's exact test.

Results:

One hundred and eighty children were randomized (Group IS N = 60, Group IP N = 59, Group NA N = 61). There were no differences in demographic variables. Respiratory complications were significantly higher in Group NA (44%) versus Group IS (3.3%) or Group IP (8.4%; $P < 0.0001$). Desaturation ($< 95\%$) was the most common respiratory complication in group NA. Inadequate anesthesia was more common in Groups NA (14.8%) and IP (6.9%) than in Group IS (1.7%, $P = 0.022$). Severe desaturation ($< 85\%$) was 4.5 % in Group NA, while no severe desaturations were seen in either Group IS or Group IP ($P < 0.0001$). Apnea was seen more often in Group NA (6.5%) than in Groups IP (1.7%) or IS (0%, $P < 0.05$ for NA versus IS + IP). No significant differences were seen in institutional efficiency between the groups. There were no significant differences in the incidence of PONV. Opioids were administered to two subjects in Group IS to treat agitation in PACU, but none in Groups NA and IP ($P < 0.02$).

Conclusion:

Respiratory complications were significantly increased in the NA group including episodes of desaturation ($< 95\%$), inadequate anesthesia and apnea. No difference was seen in efficiency. Avoidance of intubation offers no advantages in terms of airway complications or institutional efficiency in children undergoing upper endoscopy.

Reference

1. Hoffmann CO, Samuels PJ, Beckman E, Hein EA, Shackelford TM, Overbey E, et al. Insufflation vs intubation during esophagogastroduodenoscopy in children. *Paediatr Anaesth.* 2010;20(9):821-830.
