

INCIDENCE AND RISK FACTORS FOR ADVERSE EVENTS DURING MONITORED ANAESTHESIA CARE FOR GASTROINTESTINAL ENDOSCOPY IN CHILDREN: A PROSPECTIVE OBSERVATIONAL STUDY

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Incidence and risk factors for adverse events during monitored anaesthesia care for gastrointestinal endoscopy in children: A prospective observational study.

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BACKGROUND: Better understanding of risk factors for adverse events during monitored anaesthesia care (MAC) for paediatric gastrointestinal endoscopy may improve outcome in children.

OBJECTIVES: To identify the prevalence and predictors of adverse events during MAC for paediatric endoscopy.

DESIGN: An observational study.

SETTING: Tertiary university hospital, single-centre cohort, from January 2010 to August 2016.

PATIENTS: The prospectively collected electronic anaesthetic records of 3435 children aged up to 16 years who underwent diagnostic gastrointestinal endoscopy under MAC were analysed retrospectively. Children with an American Society of Anesthesiologists' physical status at least 4, and those requiring mechanical ventilation and therapeutic or urgent endoscopy were excluded.

MAIN OUTCOME MEASURES: The prevalence and predictors of adverse events during MAC for paediatric gastrointestinal endoscopy, with particular reference to the use of different anaesthetic or sedative agents.

RESULTS: Mean $\pm$ SD age of the children was 8.5 ± 4.4 years. The incidences of adverse events and adverse respiratory events were 3.4 and 3.3%, respectively. Multivariate analysis identified 12 independent predictors: age [odds ratio (OR) 0.92, $P = 0.002$], children's size for example underweight (OR 1.78, $P = 0.039$), overweight (OR 2.20, $P = 0.039$), (morbid) obesity (OR 4.25, $P = 0.006$), presence of respiratory comorbidities (OR 8.18, $P < 0.001$), recent respiratory infection (OR 23.55, $P < 0.001$) or both (OR 17.46, $P < 0.001$), neurological comorbidities (OR 2.18, $P = 0.007$), upper gastrointestinal endoscopy (OR 5.66, $P < 0.001$), propofol co-administration with ketamine (OR 10.34, $P < 0.001$) or after sevoflurane induction (OR 44.95, $P < 0.001$), and propofol induction dose (OR 18.97, $P < 0.001$). Posthoc secondary analyses revealed a significantly higher risk of adverse events (OR 3.9, $P < 0.0001$) and also significantly more respiratory comorbidities and respiratory infections ($P < 0.0001$) in children aged less than 2 years when compared with children aged at least 2 years. No cardiovascular events were observed and outcome was uneventful.

CONCLUSION: The present cohort demonstrated the feasibility and safety of MAC for paediatric gastrointestinal endoscopy by an experienced team. Although adverse events occurred rarely, their predictive factors were clinically identifiable. Applying this information in risk assessment and modifying anaesthetic management accordingly could improve outcome.

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