

## READERS OPINION

# Anesthesia-related mortality in children: the better we know the patient, the better we can predict it

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Dear Editor,

It was with great interest that I read the review article "Anesthesia-related mortality in pediatric patients: a systematic review" published by Gonzalez et al. (1) in the April 2012 issue of Clinics Journal. The authors identified incidences of anesthesia-related mortality in children and the main characteristics and risk factors of these deaths over the last 60 years from three databases.

One of the crucial measures of general anesthesia safety is mortality. Because few reports of anesthesia-related mortality in children are available, this article provides an essential review of the best reports on this subject. Additionally, this article may help guide anesthesiologists and emergency medicine physicians in predicting which risk factors are important causes of morbidity from anesthesia. General anesthesia, lower ages, an American Society of Anesthesiologists (ASA) physical status of III or greater and emergency surgeries were found to be significant risk factors for mortality in children undergoing anesthesia. While it is a fine premise to hypothesize that preoperative morbidity may contribute to worse outcomes in children undergoing general anesthesia, it is important to identify studies with significant and strong data supporting that hypothesis.

The relationship between ASA physical status and adverse events related to anesthesia and procedural sedation has previously been demonstrated in several articles. In 2009, Caperell et al. (2) showed that patients with ASA II or higher undergoing procedural sedation had higher incidences of adverse events (e.g., hypoxia), higher rates of hospital admission and increased recovery times following sedation compared with ASA I patients.

However, there are some obstacles to obtaining reliable information about deaths attributable to anesthesia in children. Some facts could explain these findings, including the rare occurrence of deaths in children (perhaps due to low perioperative morbidity and risk factors compared with adults) and the lack of reliable and uniform methods

of reporting deaths in this age group (3). Support for the development of anesthesia morbidity reporting is growing, and hospital administrators and government agencies are working to develop systems to collect data regarding critical events (4). Anesthesiologists and emergency medicine physicians need to keep anesthesia morbidity reporting as specific as possible to enable the retrieval of relevant clinical information and prevent serious adverse anesthetic-related events.

A recent study published by Ragg et al. (5) analyzed the main anesthetic complications in children undergoing general surgery between 1988 and 1993 and between 2002 and 2006. The most relevant findings from the study were the higher rates of adverse events in orthopedic surgeries and during the anesthesia maintenance period (and not the induction) and an increasing trend of difficult airways. However, complications such as esophageal intubation were more rapidly detected due to capnometry and pulse oximetry.

In conclusion, the better we know the patient undergoing surgery, the better we may predict risk factors that could raise morbidity in the perioperative period and in children undergoing procedural sedation outside the operating room. This article furthers this understanding for physicians.

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