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Block 11 2017 CAT – Anesthesiology

Reference: Beach, M. L., Cohen, D. M., Gallagher, S. M., & Cravero, J. P. (2016). Major Adverse Events and Relationship to Nil per Os Status in Pediatric Sedation/Anesthesia Outside the Operating Room. *Anesthesiology*, 124(1), 80-88. doi:10.1097/aln.0000000000000933

Introduction: Every time a patient needs a procedure that requires some level of sedation, the question is asked about when his or her last oral intake was. This has been a standard practice that is widely accepted, but is it necessary? Furthermore, is there a difference between the need for NPO status in children than in adults? This is important because of the potential adverse events that can occur such as aspiration and subsequent infection. If there is no increase in risk from oral intake, than sometimes lengthy delays in receiving beneficial treatment can be avoided. The goal of this research was to look specifically at the need for NPO status in the pediatric population.

Methods: This was a cohort study in which a database developed by the Pediatric Sedation Research Consortium (PSRC) was used to review approximately 140,000 procedural sedation/anesthesia encounters from 42 different institutions, making it the largest cohort to date. Data collection was prospective and observational. The researchers considered cases that used any level of sedation given to facilitate a procedure outside of an operating room using any type of anesthetic agent. They determined it was too difficult to differentiate the levels of sedation; however, it was noted that none of the procedures considered in the study were used with an endotracheal tube or laryngeal mask airway. The researchers had access to a data collection tool that allowed them to find the procedures that had complications. The complications considered in this study included: aspiration alone, along with death, cardiac arrest, and unexpected hospital admission. They defined aspiration as any episode in which emesis or food material was found in the oral cavity and associated with a new cough, wheeze, increased respiratory effort or O₂ requirement, or change on x-ray. The data was then put into two primary dichotomous outcomes. These were: aspiration and the occurrence of one of the adverse events. The independent variable was NPO status, which they defined as no solid foods for at least 8 hours, non-clear fluids for at least 6 hours, and no clear fluids for at least 2 hours prior to the procedure.

Results: After nearly 140,000 encounters were collected, there were no deaths, 10 aspirations, and 75 major complications. Out of the 140,000 total cases, status was known in 107,947 of them, with 25,401 not being NPO and 82,546 being NPO. Aspiration occurred in 8 of the 82,546 NPO (0.97 events per 10,000) versus 2 of the 25,401 not NPO (0.79 events per 10,000). Major complications occurred in 46 of the 82,546 NPO (5.57 events per 10,000) vs. 15 of 25,401 not NPO (5.91 events per 10,000). Odds ratio was 1.06 with 95% CI, 0.55 to 1.93; P = 0.88).

Limitations: There were very few adverse events, so it was very difficult to determine what actually caused those events to occur. Many more cases would need to be gathered before researchers could accurately look at this. This may not correlate exactly to the surgery realm, as their level of sedation is often greater than that found in procedural sedation and use instruments such as LMA and ET tubes.

Discussion/Conclusions: The outcome of this study suggests that aspiration is an uncommon event in procedural sedation, being approximately 1 event per 10,000, and that NPO status alone does not lead to major complications or aspiration in pediatric patients for either liquids or solids. As more data can be collected about adverse events over time, maybe researchers will be able to figure out what does significantly increase the occurrence of these complications.
