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Medication safety in the perioperative period

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Statement of the Problem: With enhanced recovery after surgery programs, acetaminophen is increasingly used in multimodal, opioid- sparing analgesia. At our institution, some surgeons order oral acetaminophen to be given in the holding area prior to surgery. There is no communication from the surgeon to the anesthesia team regarding these orders. From the responses of a survey administered to anesthesia providers, the preoperative nurses have identified a patient safety issue. The survey found that the anesthesia team is often unaware that the patient received the oral acetaminophen preoperatively. This raises the concern of a medication error, as the patient may inadvertently be given a second dose of acetaminophen intravenously in the operating room.

Methodology & Theoretical Orientation: To reduce the likelihood of medication overdosing, we implemented a change in the electronic health record (EHR). A pop up warning alerts the anesthesia provider that the patient already received a dose of acetaminophen. Its effectiveness in preventing double dosing errors requires that the anesthetist administering the medication enters it first into the HER prior to physically giving it to the patient.

Findings: Medication errors have been identified as the most common type of error affecting the safety of patients and the most common single preventable cause of adverse events. Moreover, acetaminophen overdose has been a significant patient safety issue in the United States and is among the leading causes of drug toxicity, surpassing liver failure from hepatitis. There are 38,000 hospitalizations and over 50,000 emergency center visits annually related to acetaminophen overdose. Factors related to the individual and system contributes to medication errors. The anesthesia practice is different from the setting in other parts of the hospital. The anaesthesia provider is typically the only practitioner involved in the entire process, prescribing, formulating, dispensing and administering the medication, thus removing the protection of double checks that exist in other hospital areas.

Conclusion & Significance: Medication errors occur with a reported frequency of 1 in 133 anesthetics. Multiple efforts to reduce errors include bar code scanning, color coded labels and prefilled syringes. The acetaminophen pop up is an additional aid in the armamentarium, and may be used with other medications to alert the anesthetist where the risk of overdosing is deemed high.

Recent Publications

1. Dhawan I, Tewari A, Sehgal S and Sinha A C (2017) Medication errors in anesthesia: unacceptable or unavoidable? Braz. J. Anesthesiol. 67(2):184-92.
2. Wahr J A, Abernathy J H, Lazarra E H, Keebler J R, Wall M H and Lynch I, et al.(2017) Medication safety in the operating room: literature and expert-based recommendations. Br. J. Anaesth. 118(1):32-43.
3. Major J M, Zhou E H, Wong H L, Trinidad J P, Pham T M and Mehta H, et al. (2016) trends in rates of acetaminophen-related adverse events in the United States. Pharmacoepidemiol Drug Saf. 25(5):590-8.
4. King J P, McCarthy D M, Serper M, Jacobson K L, Mullen R J and Parker R M, et al., (2015) Variability in acetaminophen labeling practices: a missed opportunity to enhance patient safety. J. Med. Toxicol. 11(4):410-4.
5. Brady A M, Malone A M and Fleming S (2009) A literature review of the individual and systems factors that contribute to medication errors in nursing practice. J. Nurs. Manag. 17(6):679-97.

Biography

Linh Nguyen is a Clinical Associate Professor in the Department of Anesthesiology and Perioperative Care at the University of Texas, MD Anderson Cancer Center. She teaches residents and student nurse anesthetists, and has a strong interest in improving patient safety.

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