A view of Perioperative effects of Intra-operative Opioid use in Anesthesia

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AIM

The original aim was to better understand the post-surgical and long-term effects of intraoperative (IO) opioid use. We were specifically keen on understanding how IO opioid use might play into opioid use disorder (OUD). While current literature sees clear correlations between opioid use in conscious patients and the development of OUD, little is known about long-term effects of opiates given to unconscious patients.

As the field of anesthesia trends towards opioid minimization, the actual perioperative effect of opioid use during surgery has not been clearly characterized. Opioids have long been used in anesthesia for their analgesic and hypnotic/sedative properties in combination with favorable hemodynamics and blunted sympathetic response. Opioids are also cost effective and relatively non-toxic to the renal and hepatic systems. However, there is little known about their need in anesthesia and effect beyond surgery.

Through literature and the perioperative data available through the multicenter perioperative outcomes group (MPOG), we inspected how varying amounts of IO morphine equivalents correlated to different perioperative outcomes and ICD-10 diagnoses.

METHODS

The project employed literature review and the MPOG (multicenter perioperative outcomes group) database. We aimed to assess the reported outcomes that have been correlated to opioid use like postoperative hyperalgesia, increased nausea and vomiting.

Population: We focused on patients within the DHMC IO population, who were 18+ and had cholecystectomies. We wanted to consider that different procedures had different pain outcomes based off of their level of intervention. We split up the population based on other high-risk categories to see how specific comorbidities might play into IO opioid use:

- Drug Abuse: Determined by ICD 10 code
- Depression: Determined by ICD 10 code
- Obesity classification: Patient’s with BM1>30
- Cholecystectomy: CPT 47562 or 47563

Intraoperative opioid metric:

OME: We used the OME (oral morphine equivalent value) and normalized it by patient weight and duration of procedure. The oral morphine equivalent takes the variable analgesics, like fentanyl, hydromorphone, and morphine, and converts it to a morphine equivalent.

The specific outcomes we were able to filter by included:

- Gastrointestinal/Intervention/Value/Normal/OME: Any patients tagged with complications related to GI, i.e post-operative functional disorders, ulcers, infections, and more
- PONV03: patients who undergo a procedure and have a documented nausea/emesis occurrence OR receive a rescue antiemetic in the immediate postoperative period

RESULTS

There is still much unknown about the the effects and necessity of intra-operative opioid use.

Future goals should be to link the MPOG database to longer term outcomes via eDH and other relevant patient databases. Through a cursory look into eDH data, we found there was no standardized method for categorizing and reporting pain in the perioperative period. We might want to consider creating a smart form for anesthesiologist to create a quick way to input and consolidate data on pain, LOS, and GI complication. We want to also tangentially consider how we can aggregate PACU pain scores through eDH.

While we were unable to draw many conclusions, our work this summer, did successfully characterize some of the limitations of the MPOG database when it comes to intraoperative analysis as they relate to perioperative outcomes.

REFERENCES