Preoperative Opioid Use and Clinical Outcomes in Spine Surgery: A Systematic Review

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Disclosures

- Dr. Andrew Chan receives research support from Orthofix, Inc. The other authors have no conflicts of interest to declare.
Preoperative Opioid Use in Spine Surgery

- Opioid use has become an epidemic in the US, with significant consequences
- Opioids are the most commonly prescribed drug class to treat low back pain, despite a lack of evidence supporting their efficacy
- Preoperative opioid use prior to spine surgery has been reported to range from 20% to over 70%; nearly 20% of this population is opioid dependent
- An urgent public health issue that needs to be addressed
Methods

- We systematically reviewed the literature for articles published prior to February 1st, 2019 describing the effect of preoperative opioid use in outcomes in spine surgery.
Results

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- Continued postoperative opioid use was the most widely reported outcome associated with preoperative narcotic use.
  - Our results showed that several studies reported opioid use is prevalent beyond postoperative week 12.

- Preoperative opioid use was found to be a negative predictor of return to work status in the Worker’s Compensation population.
  - Additionally, preoperative opioid use was significantly higher medical costs, psychiatric illness, failed back surgery syndrome, and postoperative opioid use in this population.
Preoperative opioid use was significantly associated with a longer length of stay postoperatively.

Armaghani et al. (2018) reported on 583 patients undergoing spinal surgery for a structural lesion; 55% of patients were preoperative opioid users. The authors calculated that each 100 morphine equivalent preoperatively translated to an extended 1.1 day in the hospital postoperatively.

Cozowicz et al. (2017) used the Premier Perspective database and found that when compared to the lowest quartile of opioid dosing in patients undergoing spinal fusion (0-202 mg/d), patients with high opioid utilization (550 mg/d or above) had a significantly higher length of stay (22% higher) and hospitalization costs (12% higher).
Results

- Preoperative opioid use was significantly associated with an increased healthcare expenditure

- Tank et al. (2018): used the National Inpatient Sample for patients undergoing 1- to 2-level lumbar fusion, and found the average cost of opioid-dependent patients to be significantly higher ($35,827) as compared to the naïve group ($24,349)

- Tye et al. (2017) found that WC patients with long-term opioid use (>3 months preoperatively) cost the Ohio Bureau of Workers’ Compensation $70,979 more than patients who were on opioid therapy for less than 3 mo.

- O’Donnell et al. (2018) found that long-term preoperative opioid use (>90 d) was associated with significantly higher medical costs ($64,635) as compared to the nonopioid group ($39,135)
Discussion

- Long-term postoperative opioid use is rampant
- Work has shown that opioids are rarely indicated beyond the acute recovery phase post-surgery; however, in spine surgery, several studies demonstrate that opioid use is prevalent beyond postoperative week 12
- Given the risk associated with chronic opioid use, there is an urgent need to apply perioperative solutions to combat opioid use:
  - Preoperative gabapentin administration, intraoperative ketamine and dexmedetomidine have been shown to reduce postoperative opiate consumption
Summary Points

- Preoperative opioid use is overwhelmingly associated with negative surgical and functional outcomes, including postoperative opioid use, hospitalization duration, healthcare costs, risk of surgical revision, and several other negative outcomes.

- There is an urgent and unmet need to find and apply extensive perioperative solutions to combat opioid use, particularly in patients undergoing spine surgery.