Reduction of Opioid Utilization in Trauma: A Multimodal Approach

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Introduction

- In the United States, the opioid epidemic remains a prominent public health concern. With dramatically increased opioid prescribing, the misuse of and addiction to opioid analgesics is a serious national crisis.

THE OPIOD EPIDEMIC BY THE NUMBERS

130+
People died every day from opiod-related drug overdoses[3] (estimated)

10.3 million
People misused prescription opiods in 2018[1]

47,600
People died from overdosing on opioids[2]

2 million
People had an opioid use disorder in 2018[1]

808,000
People used heroin in 2018[1]

81,000
People used heroin for the first time[1]

2 million
People misused prescription opioids for the firsts time[1]

15,349
Deaths attributed to overdosing on heroin (in 12-month period ending February 2019)[2]

32,656
Deaths attributed to overdosing on synthetic opiods other than methadone (in 12-month period ending February 2019)[2]

SOURCES

2019 National Survey on Drug Use and Health. Mortality in the United States. 2018
NCHS Data Brief No. 329. November 2018
NCHS. National Vital Statistics System. Estimates for 2018 and 2019 are based on provisional data.

HHS.GOV/OPIOIDS

- According to the CDC, trauma accounts for 42 million visits to the Emergency Department and two million inpatient admissions each year. In such a large patient population dealing with mostly acute and newly onset pain, adequate control can be challenging. Although this also presents an opportunity.

- The limitations of opioid-based analgesia, combined with increased understanding of pain physiology, have led the way to alternative pain management approaches, collectively known as multimodal analgesia.

Methods

- Retrospective Review (2018)
- Single, Urban Level One Trauma Center

Inclusion

- 18 years or older, direct trauma floor admission patients
- Traumatic fractures including spinal, thoracic, pelvic, and long bone

Exclusion

- Isolated fractures of face, singular rib, or bones distal to ankles or wrists
- ICU admissions
- History of chronic opioid use

Primary Outcomes

Reduction of opioid utilization in the inpatient setting and reduction of opioid prescriptions given for discharge

Secondary Outcomes

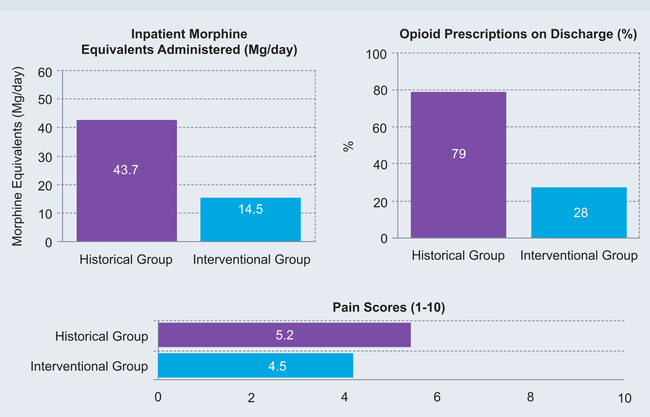
Reduction or maintenance of pain scores

Multimodal Pain Regimen (MMPR) Implementation Strategies

- Concurrent use of Acetaminophen, NSAID's, Gabapentinoids, muscle relaxers, tramadol, and other alternative analgesics to traditional opioids
- Preparation of multidisciplinary team to implement daily multimodal regimen titrations with concurrent opioid de-escalations
- Addition of multimodal agents at appropriate intervals(e.g., Toradol once bleeding risks are cleared; lidocaine patches for localized or superficial pain)
- Target goal for opioid cessation is 24 hours prior to discharge; after which only MMPR meds are required on discharge.

Results

Overall, 561 trauma patients were included in the study, 59% male and 41% female. All opioid medications administered during the patient's admission were tabulated in oral morphine equivalents. The control group (N=162) received a mean of 43.7 mg/day compared with 14.5 mg/day in the multimodal pain regimen(MMPR) group (N=399) ($p<0.04$). In the control group approximately 79% were discharged with opioid pain medications, as compared to 28% in the MMPR group. A significant decrease in pain scores was observed with control patients reporting pain scores of 5.2 and the MMPR group reporting pain scores of 4.5 within 48 hours prior to discharge ($p<0.04$). Length of stay was longer in the MMPR group (108 hrs) vs the control group (90 hrs).



Conclusion

There was a statistically significant difference in the average opioid utilization between the groups, the number of opioid prescriptions given upon discharge, and pain scores reported. Although length of stay was longer, I believe this will become less of a factor as we educate the staff in the proper use of the MMPR regimen.

Proper implementation of a multimodal pain regimen protocol in the management of a trauma population leads to a clinically and statistically significant reduction in opioid use in the inpatient setting, attenuates the number of discharge opioid prescriptions, and maintains patient satisfaction with pain management.

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