Post-operative Cardiac Surgery Opioid Stewardship Program

Amanda Rea, MSN, CRNP, AGACNP-BC, CCRN, CMC, CSC*; Kathryn Deere, PharmD, BCPS*; Zach Adams, ScM; Linda Barr, MD; Rawn Salenger, MD **KD and AR equally contributed to this project*

University of Maryland St. Joseph Medical Center

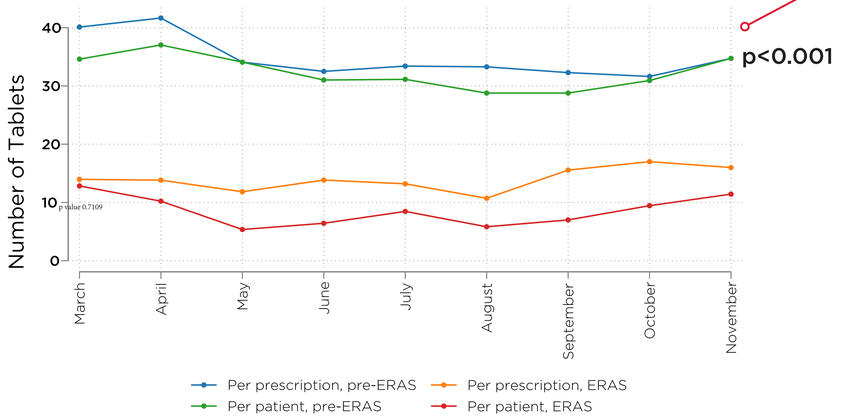
INTRODUCTION

14,000 people a year die in the US from prescription opioid overdoses.[4] A large cohort study found that 10% of opioid naïve patients experience new persistent opioid use post-cardiac surgery, and this correlates to the quantity of discharge opioids prescribed.[2] A Cardiac Enhanced Recovery After Surgery (ERAS®) program was implemented at our institution in 2018 and a main focus was our opioid-sparing, perioperative multimodal analgesia regimen. The standard practice, however, remained to discharge all cardiac surgery patients with the same dose and quantity of opioids, regardless of inpatient opioid utilization. We hypothesized that creating a program to tailor discharge opioids to individual patient needs would help decrease the overall quantity of opioids prescribed.

METHODS

- A retrospective analysis was performed on prospective data collected for all adult cardiac cases performed from March 1, 2021 to November 30, 2021. These data were compared to historical controls from 2019, after implementation of our ERAS program but before the discharge opioid program was implemented.
- A multidisciplinary cardiac surgery team (surgeons, nurse practitioners, physician assistants, and clinical pharmacists) developed an opioid stewardship protocol for discharge prescribing based on a patient's opioid utilization in the 48 hours prior to discharge.
- We utilized recommendations previously published by the Michigan group.[3]
- The protocol standardized the continuation of non-opioid analgesic medications on discharge (scheduled acetaminophen around the clock for 5 days post-discharge)
- Through the use of electronic reporting and monitoring of data, we were able to monitor refills of opioid prescriptions.

Figure 2 | *Mean Cardiac Surgery Discharge Opioid Dispensation Quantities*



Before (2019) and after (2021) implementation of ERAS
**2020 data were excluded to account for differential patient volume and elective surgery selection behavior due to the COVID-19 pandemic.*

RESULTS

- There were no baseline differences in patient demographics, STS risk scores or comorbidities
- 356 consecutive adult cardiac surgery patients comprised the study group, compared to 403 patients in the control group (2019)
- Reduction in opioids prescribed at discharge were 32% less frequent at discharge (95% CI 17%, 46%), or 20 less tablets per patient (95% CI 17, 24)
- No increase in the number of outpatient prescription refills, p=0.7 (Figure 1)
- Comparisons were made using paired t-tests and were significant at a p<0.001 level (Figure 2)
- In combination with the implementation of ERAS® and recommendations from the Michigan OPEN protocol, we also discharged patients on scheduled acetaminophen without opioids. X^2 test statistic of 109, significant at the p<0.01 level (Figure 3)

Figure 1 | *Refill Requests by Month Prior to & After Program Implementation*

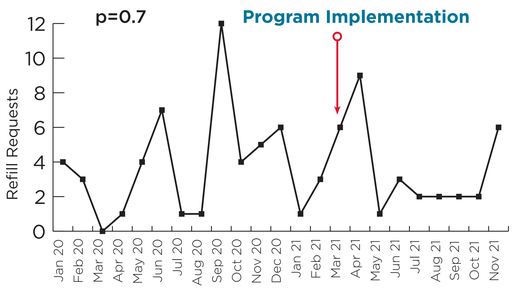
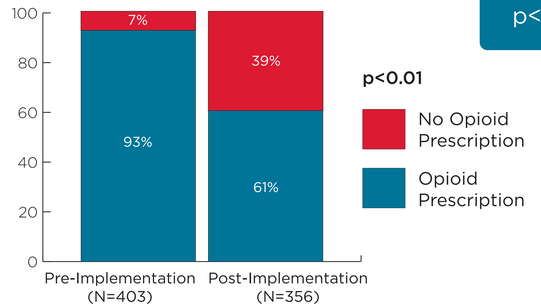


Figure 3 | *Percentage of Patients Discharged Without Opioids*



CONCLUSION

Discharge opioid stewardship programs can be a safe and effective alternative for outpatient pain management post cardiac surgery. This may help reduce the incidence of new persistent opioid use in the post-surgical patient.

References:

1. Bonnesen, K., Nikolajsen, L., Bøggild, H., Hostrup Nielsen, P., Jacobsen, C., & Viemose Nielsen, D. (2020). Chronic post-operative opioid use after open cardiac surgery: A Danish population-based cohort study. Acta Anaesthesiologica Scandinavica, 65(1), 47–57. https://doi.org/10.1111/aas.13688

2. Brown, C. R., Chen, Z., Khurshan, F., Groeneveld, P. W., & Desai, N. D. (2020). Development of Persistent Opioid Use After Cardiac Surgery. JAMA Cardiology. https://doi.org/10.1001/jamacardio.2020.1445

3. Opioid Prescribing Recommendations. Ann Arbor, MI: Michigan OPEN; 2022. Available at https://michigan-open.org/prescribing-recommendations/.

4. Wide-ranging online data for epidemiologic research (WONDER). Atlanta, GA: CDC, National Center for HealthStatistics; 2020. Available at http://wonder.cdc.gov.