Pain Management for Patients on Buprenorphine Undergoing Valve Repair Surgery for DUA-IE

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INTRODUCTION

- Patients undergoing median sternotomy for drug use associated infective endocarditis (DUA-IE) have multiple perioperative vulnerabilities including risk for return to use due to opioid agonist exposure, inadequate pain control due to prescriber concerns, and loss of medication for opioid use disorder (MOUD) due to buprenorphine discontinuation. [1-8]
- Variability in perioperative management of buprenorphine persists despite emerging evidence that continuation does not adversely impact pain control and discontinuation can destabilize MOUD. [1-4]
- This study compared post-operative pain control among patients who did vs did not receive buprenorphine prior to heart valve replacement involving median sternotomy for DUA-IE.
- Our hypothesis is that pain control is similar regardless of perioperative administration of buprenorphine.

METHODS

Project design	Single site retrospective study (n=24) Adults who underwent heart valve replacement for DUA-IE at UNC Hospital at Chapel Hill from January 1, 2021 to October 1, 2022 Excluded: patients with concurrent methadone treatment or without documented pain scores
Intervention	Buprenorphine/naloxone given on OR day
Comparison	Buprenorphine/naloxone held on OR day
Outcomes	Pain scores Opioid analgesic requirements (MME)
Hypothesis	No difference between groups
Analysis	Time-weighted averages of pain scores (POD 0-6) Time-weighted averages of MME (POD 0-6) *Shapiro-Wilk, Welch two-sample t-test* *Wilcoxson rank sum exact test*

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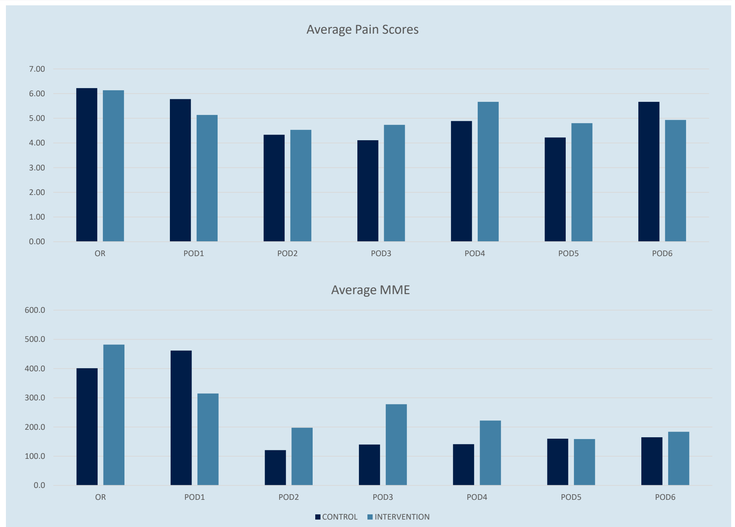
Buprenorphine administration perioperatively did not negatively impact post-operative pain control

Key Outcomes

Table 1. Population Characteristics (n=23)

	No Bup (control)	Bup (interv)
Total	9	14
Age		
18-45	8	14
56+	1	0
Sex		
Male	3	4
Female	6	10
Race		
White	7	11
Black	0	1
Asian	0	0
Other	2	2
Payor		
Medicaid	3	5
Medicare	1	0
Private	2	1
Uninsured	3	8
Admissions	9	15



Pain scores and opioid analgesic requirements were similar among patients who did and did not receive buprenorphine on operative day.

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Data Highlights

RESULTS

Time-weighted average of pain scores (post-op days 0-6)

Control	postop 24h avg Pain TWA	Intervention	postop 24h avg Pain TWA
1	4.60	10	4.28
2	2.33	11	7.77
3	6.60	12	4.13
4	7.02	13	6.50
5	6.03	14	6.08
6	4.30	15	5.16
7	4.01	16	5.72
8	5.43	17	5.54
9	5.64	18	2.65
		19	4.79
p-value = 0.8946		20	3.99
95% CI -1.31 to 1.16		21	5.27
alpha = 0.05		22	6.22
		23	5.33
		24	4.34

Time-weighted average of MME (post-op days 0-6)

Control	postop 24h avg MME TWA	Intervention	postop 24h avg MME TWA
1	363.34	10	156.0
2	167.84	11	448.5
3	195.29	12	80.0
4	247.36	13	193.8
5	184.60	14	333.5
6	210.58	15	652.4
7	153.57	16	176.3
8	555.95	17	282.4
9	150.72	18	99.5
		19	233.4
p-value = 0.6073		20	239.3
95% CI -0.08 to 0.16		21	223.9
alpha = 0.05		22	364.2
		23	104.5
		24	626.36

CONCLUSION & DISCUSSION

- Perioperative administration of buprenorphine was not associated with post-operative pain control in the setting of patients undergoing median sternotomy for cardiac valve replacement.
- Our study affirms that perioperative administration of buprenorphine does not negatively impact post-operative pain control in the setting of patients undergoing median sternotomy for cardiac valve replacement. The implication of this finding is that buprenorphine can be incorporated into the multimodal analgesic regimen without loss of pain control and without the additional risk of increased opioid requirements.
- Limitations: sample size, co-infections, pain assessment method / data
- Our findings can help guide multidisciplinary teams in the use of opioid replacement therapy in the hospital setting and to support patients on their path to recovery.
- Future studies can address continuation of buprenorphine in a wider variety of surgical cases across different hospital settings. It would be meaningful to see and identify factors associated with discontinuation of buprenorphine on day of surgery to compare pain control among patients for whom buprenorphine is continued.