Looking Under the Roof for Proof: Do Paravertebral Blocks in Myocardial Bridge Unroofings Make a Difference in Outcomes?

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Introduction

- Myocardial bridges are ventricular myocardium that overlie and envelop coronary arteries.
- Symptomatic patients experience significant disease burden and may require cardiothoracic surgery.
- Paravertebral blocks (PVBs) are proven to be practical tools for pain control with sternotomies and thoracotomies, and we hypothesize that they will demonstrate postoperative benefits for both patients and health systems.

Methods

- With IRB approval and a waiver of informed consent, a retrospective chart review was completed of a case series of 198 patients who underwent surgical myocardial bridge unroofing between 2012 and 2023.
- The intervention group received a PVB, while the control group had no block
- We examined the sternotomy and thoracotomy groups separately
- Outcomes examined were hospital and ICU length of stay, time to extubation, time to chest tube removal, pain scores, and opioid usage from POD 0-3.

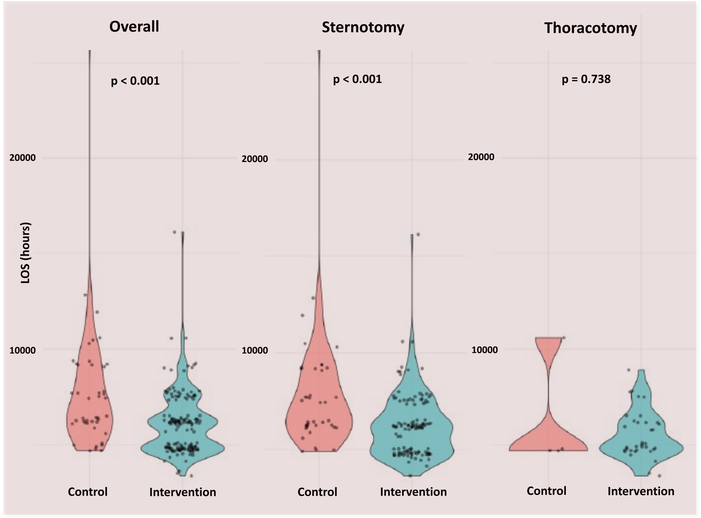

Figure 1: length of stay

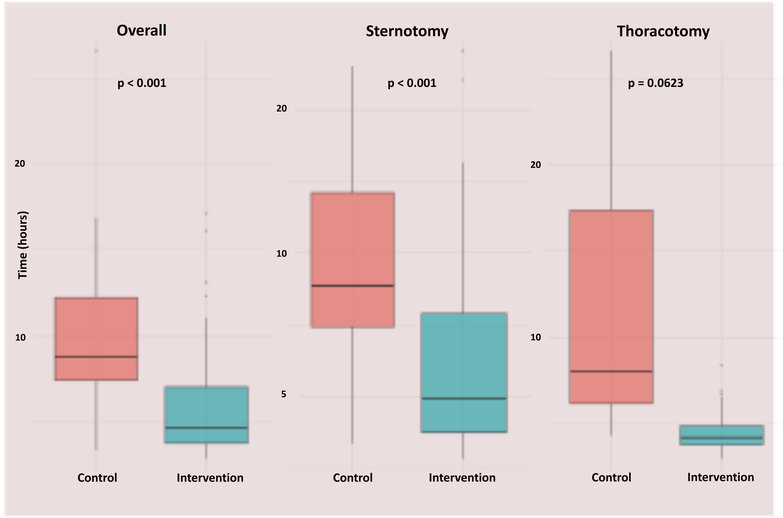

Figure 2: time to extubation

	All Patients (n=55)	STERNOTOMY-ST (n=45)	p-Values (All vs ST)	THORACOTOMY-T (n=10)	p-Values (All vs T)	p-Values (ST vs T)
Age (mean± SD)	46.9±15.41	46±15.75	0.77	51±13.7	0.43	0.35
Height(mean± SD)	169.1±9.17	168.68±9.14	0.81	171.01±9.55	0.55	0.47
Weight(mean± SD)	74.8±15.3	73.78±14.97	0.73	79.46±17.09	0.39	0.29
BMI(mean± SD)	25.9±4.34	25.78±4.22	0.80	26.94±4.95	0.53	0.44
Sex (F/M)	35 /20	30 /15		5 /5		
ASA 1 2 3 4 5	0 7 40 8 0	0 4 34 17 O	0.29	0 2 6 2 0	0.95	0.92
Length of surgery	174 min	180.6 min	0.61	145.8 min	0.14	0.09
CPB	30	26/30		0/10		
CPB time	199 ±66.8	(mean± SD)			N/A	

Table 1: patient demographics

Results

- There was no statistical difference in patient demographics.
- Overall, the intervention group had a significant shorter length of stay, as did patients receiving a sternotomy; there was no statistically significant difference for the thoracotomy group.
- Time to extubation was significantly decreased for the intervention group overall as well as the sternotomy group; meanwhile there was no difference in the thoracotomy group. There was no statistical difference in time to removal of chest tubes for any group.
- In the sternotomy group, there was no statistical difference between the groups in post-operative (POD 0 to POD 3) opioid use.
- However, in the thoracotomy group there was a statistical difference on POD3 between the intervention and control groups, but not for the other post-op days.

Discussion

- Paravertebral blocks demonstrated utility in surgery for myocardial bridge unroofing, especially for patients receiving a sternotomy.
- Overall, PVBs demonstrate decreased hospital resource utilization for patients receiving a myocardial bridge unroofing that underwent a sternotomy approach and a trend towards decreased opioid utilization with potential improvement post-op patient outcomes for patient with a thoracotomy approach.
- Excitingly, there is also signal that they are correlated with decreased time to extubation.

References

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