

# The Efficacy of Liposomal Bupivacaine in Regional Nerve Blocks for Below Knee Amputations

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## Introduction

- Chronic pain following major limb amputation is estimated to be 80%
- Evidence suggest it may be minimized with an optimized post-operative regimen
- Liposomal Bupivacaine (LB) is a formulation of local anesthetic bupivacaine to increase the duration of drug release up to 72 hours
- Currently off-label in lower extremity amputations.

## Objectives

- Assess postoperative opioid consumption after LB regional nerve blocks in BKA procedures compared to none.

## Methods

### Study design

- Retrospective case controlled study, single academic institution
- St. Luke's University Health Network IRB approved study

### Study Population/Exclusions

- Patients for both control and study groups enrolled 2019-2020
- Patient's received either
  - No regional nerve block and relied primarily opioids (study group)
  - regional nerve block with liposomal bupivacaine (control group)

### Primary Outcome

- Daily average opioid consumption postoperative period (PACU phase until discharge)

### Secondary

- Length of stay

### Statistical analysis

- Primary and secondary outcomes analyzed using SPSS and Mann-Whitney U test

## Results

	Liposomal bupivacaine (n=32)	Control (n=37)	P-value
Age (years)	64 ± 12.5	61.7 ± 12.7	0.258
Male (percent)	75	73	
Female (percent)	25	27	
Emergency case (percent)	19	13	
Average daily OME	25.0 ± 22.6	50.5 ± 40.0	0.002
LOS (days)	5.3 ± 2.6	4.9 ± 2.0	0.686

Table 1. Patient demographics, OME, and LOS in liposomal bupivacaine vs. control

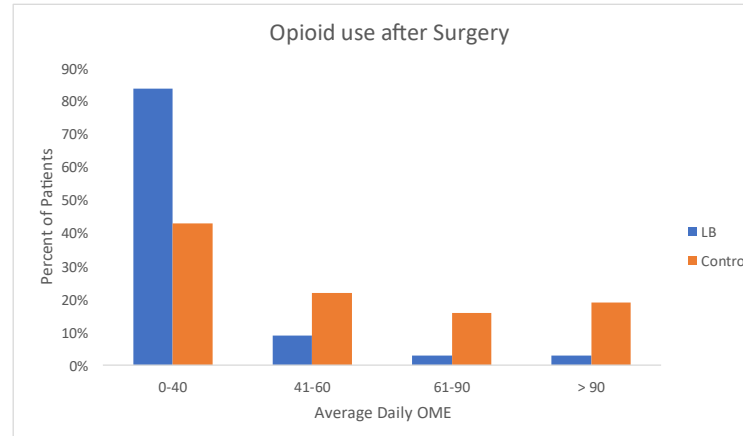


Figure 1. Percentage of patient in each OME group. Minimal opioid use (0-40), moderate use (41-60), severe use (61-90), and excessive use (>90)

## Discussion

- LB nerve blocks associated with statistically significant reduction in opioid consumption in BKAs
- Similar study by Dumitrascu et al. demonstrated significant reduction in 72-hour opioid reduction between LB nerve blocks versus no peripheral nerve block
- LB offers a unique solution as it is a single injection, which could improve patient comfort, minimize infectious risk, and decrease overall cost
- Weakness
  - Retrospective chart review
  - Did not include a standardized LB/bupivacaine mixture
  - no standardization between the type of regional block and technique
  - Sample size

## Conclusions

- LB nerve blocks associated with statistically significant reduction in opioid consumption in BKAs
- Higher percentage of patients in minimal group (84% vs. 43%)
- Lower percentages of LB in moderate, severe, and excessive groups
- Novel strategy for use in BKAs few studies/case reports describing use in amputations

## Future studies

- Comparison of nerve blocks with and without LB.
- Comparison of LB nerve blocks vs. perineural catheters

## References

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