

A RANDOMIZED TRIAL OF LIPOSOMAL BUPIVACAINE COMPARED TO CONVENTIONAL BUPIVACAINE IN ADDUCTOR CANAL BLOCKS FOR TOTAL KNEE ARTHROPLASTY



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Introduction

Total knee arthroplasty (TKA) is a commonly performed procedure to alleviate pain and improve functional limitations. Effective management of post operative pain following TKA is crucial to prevent complications and enhance recovery. Adductor canal blocks with conventional bupivacaine (CB) provide adequate analgesia after TKA but carry a risk of rebound pain following block resolution. Liposomal bupivacaine (LB) is an extended release local anesthetic that can provide up to 72 hours of pain relief.

Methods

64 patients with similar demographics and ASA status were randomly assigned to receive ACBs with either CB or LB within 1 hour after TKA. Pain scores up to 72 hours post operatively were assessed as the primary outcome. Opioid consumption and length of stay were evaluated as secondary outcomes.

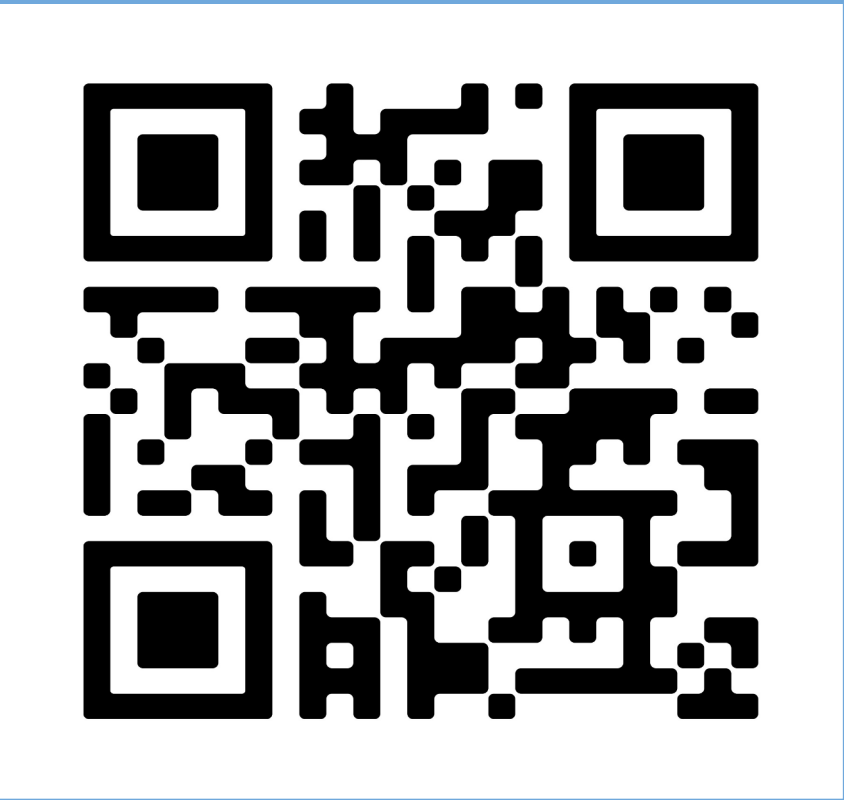
Results

The LB group showed significantly lower cumulative opioid use 72 hours post operatively. (p=0.016). There were no differences in pain scores or length of stay between groups.

Discussion

Opioid use was significantly lower in the days following TKA with LB compared to CB and overall total consumption in MME was significantly lower from POD0-POD2. There were no differences in pain scores or hospital length of stay. This study has important implications for strategies to improve postoperative outcomes following total knee arthroplasty

Liposomal Bupivacaine adductor canal blocks are associated with less opioid consumption than conventional bupivacaine on POD0-POD2 following total knee arthroplasty. There were no differences in pain scores or hospital length of stay.



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Frequency of post-operative opioid use for pain management over time

Time Period		Bupivacaine type used in adductor canal block (treatment arm)		
		Liposomal	Conventional	p-value
PACU	N	40	40	
	Received opioids	13 (32.5)	17 (42.5)	0.49 ^a
	Total dose (MME) ^b	8 [7.5-17.5]	7.5 [7.5-17.5]	0.84 ^c
POD-0	N	40	39 ^d	
	Received opioids	34 (85.0)	35 (89.7)	0.74 ^e
	Total dose (MME) ^b	26.2 [17.5-49.2]	37.5 [22.5-45.0]	0.016 ^f
POD-1	N	37	38	
	Received opioids	30 (81.1)	35 (92.1)	0.19 ^e
	Total dose (MME) ^b	27.5 [16.9-38.1]	36 [20.0-45.0]	0.016 ^f
POD-2	N	36	38	
	Received opioids	24 (66.7)	34 (89.5)	0.024 ^e
	Total dose (MME) ^b	28.8 [13.1-37.5]	30.0 [20.0-39.8]	0.016 ^f

PACU post-anesthesia care unit, POD post-operative day, MME morphine milligram equivalents

^a Chi square test with continuity correction

^b Data shown as median [interquartile range]; only those receiving opioids during each specified time period are included

^c PACU opioid use was compared between study groups by Mann Whitney U test

^d Pre-discharge opioid data unavailable for N = 1

^e Fisher’s exact test

^f Repeated measures analysis using a linear mixed effects model after log10 transformation of opioid dose data