

Efficacy and Adverse Effect of Continuous Femoral Nerve Block and Intrathecal Morphine with Patient-Controlled Epidural Analgesia Post-total Knee Arthroplasty: A Randomised Controlled Trial



Erwin Mulyawan^{1,*} and Clarissa Jasmine Aurelia²

¹Department of Anesthesiology, Faculty of Medicine, Pelita Harapan University, Tangerang, Banten15810, Indonesia

²Faculty of Medicine, Pelita Harapan University, Tangerang, Banten15810, Indonesia

Abstract:

Introduction: Achieving adequate analgesia after total knee arthroplasty (TKA) can be a challenging task. This study investigates the efficacy and adverse effects of continuous femoral nerve block using a patient-controlled analgesia machine (FNB-PCA) in comparison to intrathecal morphine (ITM) with patient-controlled epidural analgesia (PCEA) using bupivacaine in patients undergoing unilateral TKA under spinal anesthesia.

Materials and Methods: Forty patients with ASA I-II scheduled for unilateral TKA were randomized into two groups. Group ITBM+Ep received 250 mcg of intrathecal morphine and 15 mg of hyperbaric bupivacaine, and group ITB-FNB received FNB with 30 ml of 0.375% Bupivacaine with 5 mcg/ml of epinephrine with 15 mg bupivacaine administered intrathecally. Post-operative analgesia for group ITBM+Ep was maintained by PCEA with bupivacaine, while group ITB-FNB used PCA. Visual analogue scales (VAS) on rest and movement, hemodynamics, and side effects were recorded post-operatively.

Results: A decrease in VAS at rest between group ITBM+Ep and ITB-FNB from the 24th - 48th hour was statistically significant ($P < 0.05$). VAS on movement showed no statistical difference between both groups from the 1st until the 6th hour ($P > 0.05$), but VAS was significantly different starting the 12th hour ($P < 0.05$). Group FNB was associated with less hypotension, nausea, vomiting, and pruritus ($P < 0.05$).

Conclusion: This study concludes that ITB-FNB-PCA provides superior analgesia on rest and movement with a significant reduction in side effects in comparison to ITBM+Ep with PCEA for patients who underwent TKA. Further trials comparing different anesthetic techniques with larger sample sizes are necessary to establish "gold standard" management after TKA.

Clinical Trial Registration Number: 194/K-LKJ/ETIK/VI/2022

Keywords: Arthroplasty, Bupivacaine, Epidural, Femoral, Intrathecal, Morphine.

© 2024 The Author(s). Published by Bentham Open.

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

*Address correspondence to this author at the Department of Anesthesiology, Faculty of Medicine, Pelita Harapan University, Tangerang, Banten 15810, Indonesia; E-mail: erwin_mulys@yahoo.co.id

Cite as: Mulyawan E, Aurelia C. Efficacy and Adverse Effect of Continuous Femoral Nerve Block and Intrathecal Morphine with Patient-Controlled Epidural Analgesia Post-total Knee Arthroplasty: A Randomised Controlled Trial. Open Anesthesiol J, 2024; 18: e25896458294513. <http://dx.doi.org/10.2174/0125896458294513240710071442>



Received: March 24, 2024

Revised: June 21, 2024

Accepted: July 03, 2024

Published: August 08, 2024



Send Orders for Reprints to
reprints@benthamscience.net

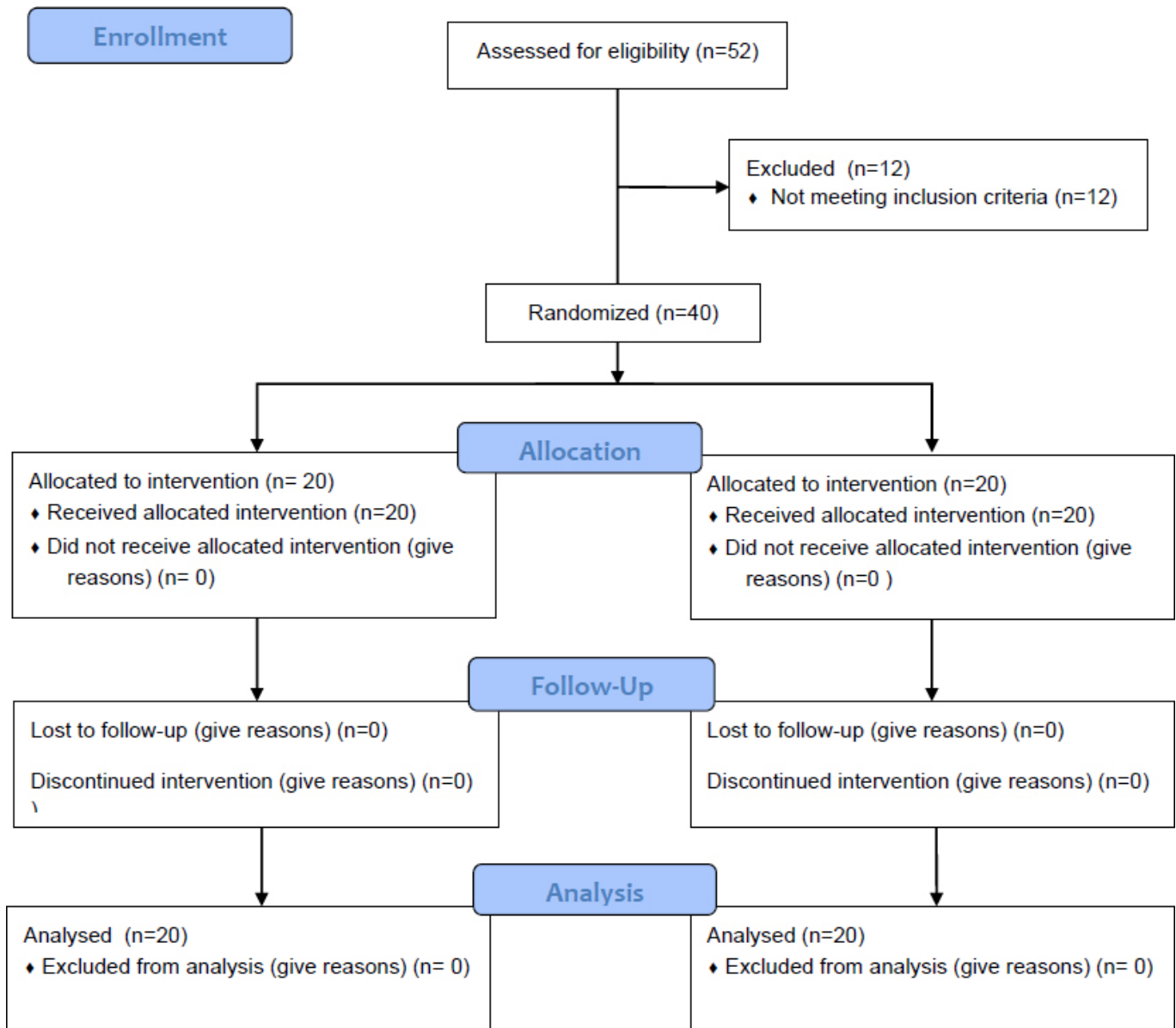


Fig. (S1). CONSORT 2010 Flow Diagram