

DAFTAR PUSTAKA

1. Erekson EA, Yip SO, Ciarleglio MM, Fried TR. Postoperative complications after gynecologic surgery. *Obstetrics and Gynecology*. 2011;118(4):785–93.
2. Supermaniam S. Laparoscopic Surgery in Gynaecology. In: *Laparoscopic Surgery in Gynaecology and Common Diseases in Women*. 1st ed. Melaka, Malaysia: Adequate Wonder; 2016.
3. Chen YYK, Boden KA, Schreiber KL. The role of regional anaesthesia and multimodal analgesia in the prevention of chronic postoperative pain: a narrative review. *Anaesthesia*. 2021;76(S1):8–17.
4. Mazda Y, Jadin S, Khan JS. Postoperative pain management. *Canadian Journal of General Internal Medicine*. 2021;16(1):1–17.
5. Murray AA, Retief FW. Acute postoperative pain in 1 231 patients at a developing country referral hospital: Incidence and risk factors. *Southern African Journal of Anaesthesia and Analgesia*. 2016;22(1):26–31.
6. Gerriet V, Anderson J, Patel P, Nappe T. Paracetamol [Internet]. *StatPearls*. 2022 [cited 2024 Sep 15]. p. 1–8. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482369/> 2022.
7. Ghanem CI, Pérez MJ, Manautou JE, Mottino AD. Acetaminophen from liver to brain: New insights into drug pharmacological action and toxicity. *Pharmacol Res*. 2016 Jul;109:119–31.
8. Ngo V, Bajaj T. Ibuprofen [Internet]. *StatPearls*. 2023 [cited 2024 Sep 15]. p. 1–10. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK542299/> 2023
9. Mahmoodi A, Patel P, Kim P. Ketorolac [Internet]. *StatPearls*. 2024 [cited 2024 Sep 23]. p. 1–5. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK545172/>
10. Salim H, Ramli Ahmad M, Kamsul Arif S, Hilal Salam S, Wijaya Tan C. Perbandingan Pemberian Ketorolak dengan Parecoxib Intravena terhadap Kadar Trombosit, Agregasi Trombosit, dan Profil Koagulasi pada Operasi Seksio Sesarea. *Jurnal Anestesi Perioperatif* [Internet]. 2021; Available from: <http://dx.doi.org/10.15851/jap.v8n3.0000>

11. Aletaha D, Kerschbaumer A, Kastrati K, Dejaco C, Dougados M, McInnes IB, et al. Consensus statement on blocking interleukin-6 receptor and interleukin-6 in inflammatory conditions: an update. *Ann Rheum Dis*. 2023 Jun;82(6):773–87.
12. Rose-John S. Local and systemic effects of interleukin-6 (IL-6) in inflammation and cancer. *FEBS Lett*. 2022 Mar;596(5):557–66.
13. Jawa RS, Anillo S, Huntoon K, Baumann H, Kulaylat M. Interleukin-6 in surgery, trauma, and critical care part II: clinical implications. *J Intensive Care Med*. 2011;26(2):73–87.
14. Afif Y, Gaus S, Ambo A. Comparison of multimodal analgesia for pain control and measuring inflammation levels using paracetamol with various dosage of ibuprofen in caesarian surgical patients. *Jurnal Kesehatan*. 2022 Jun 10;15(1):71–8.
15. Sun F, Zhang Y, Li Q. Therapeutic mechanisms of ibuprofen, prednisone and betamethasone in osteoarthritis. *Mol Med Rep*. 2017 Mar;15(2):981–7.
16. Singh P, Rastogi S, Bansal M, Kumar S, Singh R, Nishad SG, et al. A Prospective Study to Assess the Levels of Interleukin-6 Following Administration of Diclofenac, Ketorolac and Tramadol After Surgical Removal of Lower Third Molars. *J Maxillofac Oral Surg*. 2015 Jun 1;14(2):219–25.
17. Bimrew D, Misganaw A, Samuel H, Daniel Desta T, Bayable SD. Incidence and associated factors of acute postoperative pain within the first 24h in women undergoing cesarean delivery at a resource-limited setting in Addis Ababa, Ethiopia: A prospective observational study. *SAGE Open Med*. 2022;10:20503121221133190.
18. S C. Pain physiology and pain pathway. *Southern African Journal of Anaesthesia and Analgesia*. 2023;29(5):132–5.
19. Morgan GE, Mikhail S. *Clinical Anesthesiology*. 7th ed. New York: McGraw Hill; 2022.
20. Gangadharan V, Kuner R. Pain hypersensitivity mechanisms at a glance. *Dis Model Mech*. 2013 Jul;6(4):889–95.
21. Harte SE, Harris RE, Clauw DJ. The neurobiology of central sensitization. *J Appl Biobehav Res*. 2018;23(2).

22. Hirsch M, Tariq L, Duffy JM. Effect of Local Anesthetics on Postoperative Pain in Patients Undergoing Gynecologic Laparoscopy: A Systematic Review and Meta-analysis of Randomized Trials. *J Minim Invasive Gynecol.* 2021;28(10):1689–98.
23. Li M, Mei W, Wang P, Yu Y, Qian W, Zhang ZG, et al. Propofol reduces early postoperative pain after gynecological laparoscopy. *Acta Anaesthesiol Scand.* 2012;56(3):368–75.
24. Gerriet V, Anderson J, Patel P, Nappe TM. Parasetamol [Internet]. StatPearls [Internet]. 2022. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482369/>
25. Wick EC, Grant MC, Wu CL. Postoperativemultimodal analgesia pain management with nonopioid analgesics and techniques a review. *JAMA Surg.* 2017;152(7):691–7.
26. Gibbison B, Kinsella S. Postoperative analgesia for gynecological laparoscopy. *Saudi J Anaesth.* 2009;3(2):70.
27. Bockxmeer JV, Varshney V, Lau A. Ceiling doses of ketorolac and ibuprofen in acute pain management. *This Changed My Practice (TCMP) by UBC CPD.* 2023. p. 1–3.
28. Flood P, Rathmell JP. *Stoelting Pharmacology & Physiology in Anesthetic Practice.* Sixth Edition. 2022. 872–873 p.
29. Ekinci M, Ciftci B, Celik EC, Köse EA, Karakaya MA, Ozdenkaya Y. A Randomized, Placebo-Controlled, Double-Blind Study that Evaluates Efficacy of Intravenous Ibuprofen and Acetaminophen for Postoperative Pain Treatment Following Laparoscopic Cholecystectomy Surgery. *J Gastrointest Surg.* 2020 Apr;24(4):780–5.
30. Mahmoodi AN, Patel P, . PYK. Ketorolac [Internet]. StatPearls [Internet]. 2024. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK545172/#:~:text=Ketorolac%2C a nonsteroidal anti-inflammatory,%2C IV%2C or IM administration.>
31. Beverly A, Kaye AD, Ljungqvist O, Urman RD. Essential Elements of Multimodal Analgesia in Enhanced Recovery After Surgery (ERAS) Guidelines. *Anesthesiol Clin.* 2017;35(2):e115–43.
32. Nelson G, Altman AD, Nick A, Meyer LA, Ramirez PT, Achantari C, et al. Guidelines for postoperative care in gynecologic/oncology surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations — Part II. *Gynecol Oncol.* 2016;140(2):323–32.

33. Chaudhry R, Usama SM, Babiker HM. *Physiology, Coagulation Pathways*. In Treasure Island (FL); 2023.
34. Hasrimayana H, Arsyad A, Cangara MH. Comparison of Bleeding Time and Clotting Time in Women Against Abo Blood Type. *Jambura Journal of Health Sciences and Research*. 2023;5(1):391–8.
35. Fithri D, Wijaya D, Arifin H. Perbedaan Nilai Agregasi Trombosit Akibat Pengaruh Penggunaan Analgesia Ketorolak dan Ibuprofen Intravena Pascaoperasi di RSUP Haji Adam Malik Medan. *Jurnal Anestesi Perioperatif*. 2017;5(3):141–6.
36. Roy KK, Subbaiah M, Singla S, Kumar S, Sharma JB, Mitra DK. Role of serum interleukin-6 in comparing surgical stress after laparoscopic-assisted vaginal hysterectomy and non-descent vaginal hysterectomy for large uteri. *Arch Gynecol Obstet*. 2012 Mar;285(3):671–6.
37. Cui X, Xiao HC, Pan W. The predictive value of serum IL-17A and IL-6 expression in postoperative recurrence in patients with intrauterine adhesion. *Am J Reprod Immunol*. 2024 Jan;91(1):e13808.
38. Wittes J. Sample Size Calculations for Randomized Controlled Trials. *Epidemiol Rev*. 2002 Jul 1;24(1):39–53
39. Syawal A, Ahmad MR, Wirawan NS, Musba MT, Muhadi R, Damayanthie M. Perbandingan antara kombinasi ibuprofen dan paracetamol dengan ibuprofen terhadap derajat nyeridan kadar substansi-p pasca seksio sesarea dengan anestesi spinal. *JAOL*. 2022;5(3): 1-7
40. Lubis AM, Maruanaya S, Tantri AR, Pontoh LAP, Ifran NNPPS. The Use of Combination Paracetamol and Ibuprofen in Postoperative Pain after Total Knee Arthroplasty, a Randomized Controlled Trial. *Pain Physician*. 2021;24(8):1199-1204
41. Rahim MR, Musba AMT, Palinrungi AS, Ahmad MR, Muhadi R, Rum M. Perbandingan antara Kombinasi Ibuprofen dan Parasetamol dengan Ketorolak dan Parasetamol Intravena Terhadap Derajat Nyeri dan Rasio Neutrofil Limfosit Pasca-Functional Endoscopic Sinus Surgery. *Jurnal Anestesi Perioperatif*. 2024;12(3)
42. Gupta A, Abubaker H, Demas E, Ahrendtsen L. A Randomized Trial Comparing the Safety and Efficacy of Intravenous Ibuprofen versus Ibuprofen and Acetaminophen in Knee or Hip Arthroplasty. *Pain Physician*. 2016 Jul;19(6):349-56

43. Regina M. Botting, Mechanism of Action of Acetaminophen: Is There a Cyclooxygenase 3?. *Clinical Infectious Diseases*. 2000 Oct;31(5):202-210
44. Mărginean MO, Meliț LE, Mocanu S, Săsăran V. Ibuprofen, a Potential Cause of Acute Hemorrhagic Gastritis in Children - A Case Report. *J Crit Care Med (Targu Mures)*. 2018 Oct;4(4):143-146
45. Martini WZ, Deguzman R, Rodriguez CM, Guerra J, Martini AK, Pusateri AE, Dubick MA. Effect of Ibuprofen dose on platelet aggregation and coagulation in blood samples from pigs. *Mil Med*. 2015 Mar;180(3 Suppl):80-5
46. Goldenberg NA, Jacobson L, Manco-Johnson MJ. Brief communication: duration of platelet dysfunction after a 7-day course of Ibuprofen. *Ann Intern Med*. 2005 Apr 5;142(7):506-9
47. Thwaites B, Nigus DB, Bouska G, Mongan PD, Ayala EF, Merrill GA. Intravenous Ketorolac Tromethamine Worsens Platelet Function During Knee Arthroscopy Under Spinal Anesthesia. *Anesthesia & Analgesia*. 1996 Juni;82(6):1176-1181
48. Park A, Anderson D, Battaglino RA, Nguyen N, Morse LR. Ibuprofen use is associated with reduced C-reactive protein and interleukin-6 levels in chronic spinal cord injury. *J Spinal Cord Med*. 2022 Jan;45(1):117-125
49. Younus LA. The Potential Impact of Ibuprofen on Level of IL-6. *Ma'aen Journal For Medical Sciences*. 2024;3(1):24-28
50. Carvalho B, Lemmens HJ, Ting V, Angst MS. Postoperative subcutaneous instillation of low-dose ketorolac but not hydromorphone reduces wound exudate concentrations of interleukin-6 and interleukin-10 and improves analgesia following cesarean delivery. *J Pain*. 2013 Jan;14(1):48-56
51. Luggya TS, Roche T, Ssemogerere L, Kintu A, Kasumba JM, Kwizera A, et al. Effect of low-dose ketamine on post-operative serum IL-6 production among elective surgical patients: A randomized clinical trial. *Afr Health Sci*. 2017;17(2):500-7.
52. Douraiswami B, Dilip PK, Harish BN, Jagdish M. C-reactive protein and interleukin-6 levels in the early detection of infection after open fractures. *J Orthop Surg (Hong Kong)*. 2012;20(3):381-5.



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
RSPTN UNIVERSITAS HASANUDDIN
RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
JL.PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245.



Contact Person: dr. Agusaim Bukhari, MMed, PhD, SpGK. TELP. 081241850838, 0411 5780103, Fax : 0411-581431

REKOMENDASI PERSETUJUAN ETIK

Nomor : 1010/UN4.6.4.5.31/ PP36/ 2024

Tanggal: 20 Nopember 2024

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH24100883	No Sponsor	
Peneliti Utama	dr. Muhammad Khaerul Ma'arif	Sponsor	
Judul Peneliti	Perbandingan antara kombinasi ibuprofen dan parasetamol dengan ketorolak dan parasetamol pada pasien yang menjalani operasi ginekologi (Tinjauan terhadap derajat nyeri, profil koagulasi dan kadar interleukin-6)		
No Versi Protokol	2	Tanggal Versi	18 Nopember 2024
No Versi PSP	2	Tanggal Versi	18 Nopember 2024
Tempat Penelitian	RSUP Dr.Wahidin Sudirohusodo Makassar		
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku 20 Nopember 2024 sampai 20 Nopember 2025	Frekuensi review lanjutan
Ketua KEP Universitas Hasanuddin	Prof. dr. Muh Nasrum Massi, PhD, SpMK, Subsp. Bakt(K)	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	dr. Firdaus Hamid, PhD, SpMK(K)	Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari prokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan

CURICULUM VITAE

1. DATA PRIBADI

Nama Lengkap : Muhammad Khaerul MaarifA.
Tempat tanggalahir : Ujungpandang, 19 Juni 1995
Jenis Kelamin : Laki-laki
Kewarganegaraan : Warga Negara Indonesia
Agama : Islam
Alamat : BTP Blok F no 424, Makassar
Email : khaerulmaarif19@yahoo.com

2. RIWAYAT PENDIDIKAN

No	Jenjang Pendidikan	Institusi	Tahun	Tempat
1	SD	SDN 1 Enrekang	200-2006	Enrekang
2	SMP	SMP Pesantren IMMIM	2006-2009	Makassar
3	SMA	SMA Pesantren IMMIM	2009-2012	Makassar
4	S1 & PROFESI	FK Universitas Muslim Indonesia	2012-2019	Makassar
5	PPDS	Departemen Ilmu Anestesi, Terapi Intensif dan Manajemen Nyeri FK Universitas	2021-2025	Makassar

