

DAFTAR PUSTAKA

- Abraham, S. M., Lawrence, T., Kleiman, A., Warden, P., Medghalchi, M., Tuckermann, J., Saklatvala, J., & Clark, A. R. (2006). Antiinflammatory effects of dexamethasone are partly dependent on induction of dual specificity phosphatase 1. *Journal of Experimental Medicine*, 203(8), 1883–1889. <https://doi.org/10.1084/JEM.20060336>
- Alimasi, W., Sawaji, Y., Endo, K., Yorifuji, M., Suzuki, H., Kosaka, T., Shishido, T., & Yamamoto, K. (2013). Regulation of nerve growth factor by anti-inflammatory drugs, a steroid, and a selective cyclooxygenase 2 inhibitor in human intervertebral disc cells stimulated with interleukin-1. *Spine*, 38(17), 1466–1472. <https://doi.org/10.1097/BRS.0B013E318294EDB1>
- Andersson, Å., Covacu, R., Sunnemark, D., Danilov, A. I., Dal Bianco, A., Khademi, M., Wallström, E., Lobell, A., Brundin, L., Lassmann, H., & Harris, R. A. (2008). Pivotal Advance: HMGB1 expression in active lesions of human and experimental multiple sclerosis. *Journal of Leukocyte Biology*, 84(5), 1248–1255. <https://doi.org/10.1189/JLB.1207844>
- Aoki, Y., Nakajima, A., Ohtori, S., Takahashi, H., Watanabe, F., Sonobe, M., Terajima, F., Saito, M., Takahashi, K., Toyone, T., Watanabe, A., Nakajima, T., Takazawa, M., & Nakagawa, K. (2014). Increase of nerve growth factor levels in the human herniated intervertebral disc: can annular rupture trigger discogenic back pain? *Arthritis Research & Therapy*, 16(4). <https://doi.org/10.1186/AR4674>
- Aucott, H., Sowinska, A., Harris, H. E., & Lundback, P. (2018). Ligation of free HMGB1 to TLR2 in the absence of ligand is negatively regulated by C-terminal tail domain. *Molecular Medicine*, 24(1). [s://doi.org/10.1186/S10020-018-0021-X](https://doi.org/10.1186/S10020-018-0021-X)



- Bahrudin, M. (2017). *Patofisiologi Nyeri*. 13(1), 7–13.
<https://ejournal.umm.ac.id/index.php/sainmed/article/download/5449/5246/14282>
- Bailly, F., Trouvin, A. P., Bercier, S., Dadoun, S., Deneuille, J. P., Faguer, R., Fassier, J. B., Koleck, M., Lassalle, L., Le Vraux, T., Brigitte, L., Petitprez, K., Ramond-Roquin, A., Renard, J. F., Roren, A., Rozenberg, S., Sebire, C., Vuides, G., Rannou, F., & Audrey, P. (2021). Clinical guidelines and care pathway for management of low back pain with or without radicular pain. *Joint Bone Spine*, 88(6).
<https://doi.org/10.1016/j.jbspin.2021.105227>
- Barker, P. A., Mantyh, P., Arendt-Nielsen, L., Viktrup, L., & Tive, L. (2020). *Nerve Growth Factor Signaling and Its Contribution to Pain*.
<https://doi.org/10.2147/JPR.S247472>
- Bjorland, S., Moen, A., Schistad, E., Gjerstad, J., & Røe, C. (2016). Genes associated with persistent lumbar radicular pain; a systematic review. *BMC Musculoskeletal Disorders*, 17(1), 1–10.
<https://doi.org/10.1186/S12891-016-1356-5/TABLES/3>
- Casula, M., Iyer, A. M., Spliet, W. G. M., Anink, J. J., Steentjes, K., Sta, M., Troost, D., & Aronica, E. (2011). Toll-like receptor signaling in amyotrophic lateral sclerosis spinal cord tissue. *Neuroscience*, 179, 233–243. <https://doi.org/10.1016/J.NEUROSCIENCE.2011.02.001>
- Chavan, S. S., Huerta, P. T., Robbiati, S., Valdes-Ferrer, S. I., Ochani, M., Dancho, M., Frankfurt, M., Volpe, B. T., Tracey, K. J., & Diamond, B. (2012). HMGB1 mediates cognitive impairment in sepsis survivors. *Molecular Medicine*, 18(6), 930–937.
<https://doi.org/10.2119/MOLMED.2012.00195>



. Y., & Nuñez, G. (2010). Sterile inflammation: sensing and reacting damage. *Nature Reviews. Immunology*, 10(12), 826–837.

<https://doi.org/10.1038/NRI2873>

Chen, S., Chen, M., Wu, X., Lin, S., Tao, C., Cao, H., Shao, Z., & Xiao, G. (2021). Global, regional and national burden of low back pain 1990-2019: A systematic analysis of the Global Burden of Disease study 2019. *Journal of Orthopaedic Translation*, 32, 49–58. <https://doi.org/10.1016/J.JOT.2021.07.005>

Choi, E.-J., Park, S. J., Yoo, Y.-M., Yoon, J.-U., Shin, S.-W., & Byeon, G.-J. (2021). Comparison of the Oblique Interlaminar and Transforaminal Lumbar Epidural Steroid Injections for Treatment of Low Back and Lumbosacral Radicular Pain. *Journal of Pain Research*, 14, 407–414. <https://doi.org/10.2147/JPR.S293166>

Das, N., Dewan, V., Grace, P. M., Gunn, R. J., Tamura, R., Tzarum, N., Watkins, L. R., Wilson, I. A., & Yin, H. (2016). HMGB1 Activates Proinflammatory Signaling via TLR5 Leading to Allodynia. *Cell Reports*, 17(4), 1128–1140. <https://doi.org/10.1016/J.CELREP.2016.09.076>

Dénes, K., Arányi, Z., Csillik, A., Simó, M., Debreczeni, R., Tegze, N., & Bereczki, D. (2020). Serum biomarkers in acute low back pain and sciatica. *Orvosi Hetilap*, 161(13), 483–490. <https://doi.org/10.1556/650.2020.31665>

Festoff, B. W., Sajja, R. K., van Dreden, P., & Cucullo, L. (2016). HMGB1 and thrombin mediate the blood-brain barrier dysfunction acting as biomarkers of neuroinflammation and progression to neurodegeneration in Alzheimer's disease. *Journal of Neuroinflammation*, 13(1). <https://doi.org/10.1186/S12974-016-0670-Z>

Freeman, B. J. C., Ludbrook, G. L., Hall, S., Cousins, M., Mitchell, B., Jaros, M., Wyand, M., & Gorman, J. R. (2013a). Randomized, double-blind, placebo-controlled, trial of transforaminal epidural etanercept for the treatment of symptomatic lumbar disc herniation. *Spine*, 38(23), 1986–



1994. <https://doi.org/10.1097/01.brs.0000435140.61593.4c>

Freeman, B. J. C., Ludbrook, G. L., Hall, S., Cousins, M., Mitchell, B., Jaros, M., Wyand, M., & Gorman, J. R. (2013b). Randomized, double-blind, placebo-controlled, trial of transforaminal epidural etanercept for the treatment of symptomatic lumbar disc herniation. *Spine*, 38(23), 1986–1994. <https://doi.org/10.1097/01.BRS.0000435140.61593.4C>

Freidin, M. B., Tsepilov, Y. A., Palmer, M., Karssen, L. C., Suri, P., Aulchenko, Y. S., & Williams, F. M. K. (2019). Insight into the genetic architecture of back pain and its risk factors from a study of 509,000 individuals. *Pain*, 160(6), 1361. <https://doi.org/10.1097/J.PAIN.0000000000001514>

Fritz, J., Niemeyer, T., Clasen, S., Wiskirchen, J., Tepe, G., Kastler, B., Nägele, T., König, C. W., Claussen, C. D., & Pereira, P. L. (2007). Management of chronic low back pain: Rationales, principles, and targets of imaging-guided spinal injections. *Radiographics*, 27(6), 1751–1771. <https://doi.org/10.1148/RG.276065509>

Gu, H., Wang, C., Li, J., Yang, Y., Sun, W., Jiang, C., Li, Y., Ni, M., Liu, W. T., Cheng, Z., & Hu, L. (2020). High mobility group box-1-toll-like receptor 4-phosphatidylinositol 3-kinase/protein kinase B-mediated generation of matrix metalloproteinase-9 in the dorsal root ganglion promotes chemotherapy-induced peripheral neuropathy. *International Journal of Cancer*, 146(10), 2810–2821. <https://doi.org/10.1002/ijc.32652>

Haefeli, M., & Elfering, A. (2006). Pain assessment. *European Spine Journal*, 15(Suppl 1), S17. <https://doi.org/10.1007/S00586-005-1044-X>

Hartvigsen, J., Hancock, M. J., Kongsted, A., Louw, Q., Ferreira, M. L., Genevay, S., Hoy, D., Karppinen, J., Pransky, G., Sieper, J., Smeets, R., Jenderwood, M., Buchbinder, R., Cherkin, D., Foster, N. E., Maher, C., van Tulder, M., Anema, J. R., Chou, R., ... Woolf, A. (2018). What



low back pain is and why we need to pay attention. *The Lancet*, 391(10137), 2356–2367. [https://doi.org/10.1016/S0140-6736\(18\)30480-X](https://doi.org/10.1016/S0140-6736(18)30480-X)

Hider, S. L., Konstantinou, K., Hay, E. M., Glossop, J., & Matthey, D. L. (2019). Inflammatory biomarkers do not distinguish between patients with sciatica and referred leg pain within a primary care population: results from a nested study within the ATLAS cohort. *BMC Musculoskeletal Disorders*, 20(1). <https://doi.org/10.1186/S12891-019-2604-2>

Hooten, W. M., Nicholson, W. T., Gazelka, H. M., Reid, J. M., Moeschler, S. M., & Lamer, T. J. (2016). Serum triamcinolone levels following interlaminar epidural injection. *Regional Anesthesia and Pain Medicine*, 41(1), 75–79. <https://doi.org/10.1097/AAP.0000000000000333>

Houten, J. K., & Errico, T. J. (2002). Paraplegia after lumbosacral nerve root block: Report of three cases. *Spine Journal*, 2(1), 70–75. [https://doi.org/10.1016/S1529-9430\(01\)00159-0](https://doi.org/10.1016/S1529-9430(01)00159-0)

Ito, M., Takahashi, H., Yano, H., Shimizu, Y. I., Yano, Y., Ishizaki, Y., Tanaka, J., Ishii, E., & Fukuda, M. (2017). High mobility group box 1 enhances hyperthermia-induced seizures and secondary epilepsy associated with prolonged hyperthermia-induced seizures in developing rats. *Metabolic Brain Disease* 2017 32:6, 32(6), 2095–2104. <https://doi.org/10.1007/S11011-017-0103-4>

Jungen, M. J., Ter Meulen, B. C., Van Osch, T., Weinstein, H. C., & Ostelo, R. W. J. G. (2019). Inflammatory biomarkers in patients with sciatica: A systematic review. *BMC Musculoskeletal Disorders*, 20(1), 1–9. <https://doi.org/10.1186/S12891-019-2541-0/TABLES/3>



C., & Lin, C. S. (2017). Caudal Epidural Block: An Updated Review of tomy and Techniques. *BioMed Research International*, 2017.

<https://doi.org/10.1155/2017/9217145>

Knezevic, N. N., Candido, K. D., Vlaeyen, J. W. S., Van Zundert, J., & Cohen, S. P. (2021). Low back pain. In *The Lancet* (Vol. 398, Issue 10294, pp. 78–92). Elsevier B.V. [https://doi.org/10.1016/S0140-6736\(21\)00733-9](https://doi.org/10.1016/S0140-6736(21)00733-9)

Knezevic, N. N., Jovanovic, F., Voronov, D., & Candido, K. D. (2018). Do corticosteroids still have a place in the treatment of chronic pain? *Frontiers in Pharmacology*, 9(NOV). <https://doi.org/10.3389/fphar.2018.01229>

Lamer, T. J., Dickson, R. R., Gazelka, H. M., Nicholson, W. T., Reid, J. M., Moeschler, S. M., & Hooten, W. M. (2018). Serum Triamcinolone Levels following Cervical Interlaminar Epidural Injection. *Pain Research & Management*, 2018. <https://doi.org/10.1155/2018/8474127>

Li, Y., Liu, J., Liu, Z. Z., & Duan, D. P. (2016). Inflammation in low back pain may be detected from the peripheral blood: suggestions for biomarker. *Bioscience Reports*, 36(4). <https://doi.org/10.1042/BSR20160187>

Lo Coco, D., Veglianesi, P., Allievi, E., & Bendotti, C. (2007). Distribution and cellular localization of high mobility group box protein 1 (HMGB1) in the spinal cord of a transgenic mouse model of ALS. *Neuroscience Letters*, 412(1), 73–77. <https://doi.org/10.1016/J.NEULET.2006.10.063>

Lyu, F.-J., Cui, H., Pan, H., Cheung, K. M., Cao, X., Iatridis, J. C., & Zheng, Z. (n.d.). *Painful intervertebral disc degeneration and inflammation: from laboratory evidence to clinical interventions*. <https://doi.org/10.1038/s41413-020-00125-x>

Mandell, J. C., Czuczman, G. J., Gaviola, G. C., Ghazikhanian, V., & Cho, C. H. (2017). The Lumbar Neural Foramen and Transforaminal Epidural steroid Injections: An Anatomic Review With Key Safety Considerations Planning the Percutaneous Approach. *AJR. American Journal of*



Roentgenology, 209(1), W26 W35. <https://doi.org/10.2214/AJR.16.17471>

Mizumura, K., & Murase, S. (2015). Role of Nerve Growth Factor in Pain. *Handbook of Experimental Pharmacology*, 227, 57–77. https://doi.org/10.1007/978-3-662-46450-2_4

Negrini, F. (2020). Are epidural corticosteroid injections effective for lumbosacral radicular pain? A Cochrane Review summary with commentary. *NeuroRehabilitation*, 47(4). <https://doi.org/10.3233/NRE-209008>

Nishibori, M., Scott, M. J., Yang, H., Andersson, U., & Wang, H. (2020). Targeting Inflammation Driven by HMGB1. *Frontiers in Immunology | Www.Frontiersin.Org*, 1, 484. <https://doi.org/10.3389/fimmu.2020.00484>

Ohtori, S., Miyagi, M., Eguchi, Y., Inoue, G., Orita, S., Ochiai, N., Kishida, S., Kuniyoshi, K., Nakamura, J., Aoki, Y., Ishikawa, T., Arai, G., Kamoda, H., Suzuki, M., Takaso, M., Furuya, T., Kubota, G., Sakuma, Y., Oikawa, Y., ... Takahashi, K. (2012). Efficacy of epidural administration of anti-interleukin-6 receptor antibody onto spinal nerve for treatment of sciatica. *European Spine Journal*, 21(10), 2079–2084. <https://doi.org/10.1007/s00586-012-2183-5>

Ohtori, S., Miyagi, M., Eguchi, Y., Inoue, G., Orita, S., Ochiai, N., Kishida, S., Kuniyoshi, K., Nakamura, J., Aoki, Y., Ishikawa, T., Arai, G., Kamoda, H., Suzuki, M., Takaso, M., Furuya, T., Toyone, T., & Takahashi, K. (2012). Epidural administration of spinal nerves with the tumor necrosis factor-alpha inhibitor, etanercept, compared with dexamethasone for treatment of sciatica in patients with lumbar spinal stenosis: a prospective randomized study. *Spine*, 37(6), 439–444. <https://doi.org/10.1097/BRS.0B013E318238AF83>



C. B., Maher, C. G., Ferreira, M. L., Hancock, M. J., Oliveira, V. C., achlan, A. J., Koes, B. W., Ferreira, P. H., Cohen, S. P., & Pinto, R.

Z. (2020a). Epidural corticosteroid injections for lumbosacral radicular pain. In *Cochrane Database of Systematic Reviews* (Vol. 2020, Issue 4). <https://doi.org/10.1002/14651858.CD013577>

Oliveira, C. B., Maher, C. G., Ferreira, M. L., Hancock, M. J., Oliveira, V. C., McLachlan, A. J., Koes, B. W., Ferreira, P. H., Cohen, S. P., & Pinto, R. Z. (2020b). Epidural corticosteroid injections for lumbosacral radicular pain. *Cochrane Database of Systematic Reviews*, 2020(4). <https://doi.org/10.1002/14651858.CD013577>

Oo, W. M., & Hunter, D. J. (2021). Nerve Growth Factor (NGF) Inhibitors and Related Agents for Chronic Musculoskeletal Pain: A Comprehensive Review. *BioDrugs*, 35(6), 611–641. <https://doi.org/10.1007/s40259-021-00504-8>

Ota, Y., Connolly, M., Srinivasan, A., Kim, J., Capizzano, A. A., & Moritani, T. (2020a). Mechanisms and Origins of Spinal Pain: from Molecules to Anatomy, with Diagnostic Clues and Imaging Findings. *RadioGraphics*, 40, 1163–1181. <https://doi.org/10.1148/rg.2020190185>

Ota, Y., Connolly, M., Srinivasan, A., Kim, J., Capizzano, A. A., & Moritani, T. (2020b). Mechanisms and origins of spinal pain: From molecules to anatomy, with diagnostic clues and imaging findings. *Radiographics*, 40(4), 1163–1181. <https://doi.org/10.1148/RG.2020190185/ASSET/IMAGES/LARGE/RG.2020190185.FIG15.JPEG>

Paudel, Y. N., Shaikh, M. F., Chakraborti, A., Kumari, Y., Aledo-Serrano, Á., Aleksovskaja, K., Alvim, M. K. M. H., & Othman, I. (2018). HMGB1: A common biomarker and potential target for TBI, neuroinflammation, epilepsy, and cognitive dysfunction. *Frontiers in Neuroscience*, 12(SEP), . <https://doi.org/10.3389/FNINS.2018.00628/BIBTEX>

ʀ., Bongiovanni, T., Corbu, S., Francavilla, V. C., Dessi, A., Noto, A.,



Corsello, G., Finco, G., Fanos, V., & Cesare Marincola, F. (2021). Sportomics in professional soccer players: Metabolomics results during preseason. *Journal of Sports Medicine and Physical Fitness*, 61(2). <https://doi.org/10.23736/S0022-4707.20.11200-3>

Purwanta, T., Sadely, H., Yudiyanta, Emril, D., Santoso, W., & Tama, W. (2019). *Konsensus Nasional Penatalaksanaan Nyeri* (T. Purwanta, H. Sadely, Yudiyanta, D. Emril, W. Santoso, & W. Tama (eds.); 1st ed.). Ar-Ruzz Media.

Purwata, T. E., Sadeli, H. A., Yudiyanta, Emril, D. R., Santoso, W. M., & Tama, W. N. (2019). *Konsensus Nasional Penatalaksanaan Nyeri*.

Ranjan Singh, R., & Singh, B. (2021). EFFECTIVENESS OF EPIDURAL STEROID INJECTION FOR THE MANAGEMENT OF CHRONIC LOW BACK PAIN. *INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH*, 52–54. <https://doi.org/10.36106/2536610>

Sahu, D. K., Kale, A., Sharma, A., & Parampill, R. (2020). Comparison of clinical efficacy between dexamethasone and triamcinolone for transforaminal epidural steroid injections in the management of low back pain. *Indian Journal of Pain*, 34(2), 101. https://doi.org/10.4103/IJPN.IJPN_35_19

Schaufele, M. K., Hatch, L., & Jones, W. (2006). Interlaminar versus transforaminal epidural injections for the treatment of symptomatic lumbar intervertebral disc herniations. *Pain Physician*, 9(4), 361–366.

Shah, B. S., Burt, K. G., Jacobsen, T., Fernandes, T. D., Alipui, D. O., Weber, K. T., Levine, M., Chavan, S. S., Yang, H., Tracey, K. J., & Chahine, N. O. (2019). High Mobility Group Box-1 Induces Pro-Inflammatory Signaling in Human Nucleus Pulposus Cells via Toll-Like receptor 4-Dependent Pathway. *Journal of Orthopaedic Research: Official Publication of the Orthopaedic Research Society*, 37(1), 220.



<https://doi.org/10.1002/JOR.24154>

Shibasaki, M., Sasaki, M., Miura, M., Mizukoshi, K., Ueno, H., Hashimoto, S., Tanaka, Y., & Amaya, F. (2010). Induction of high mobility group box-1 in dorsal root ganglion contributes to pain hypersensitivity after peripheral nerve injury. *Pain*, *149*(3), 514–521. <https://doi.org/10.1016/j.pain.2010.03.023>

Shimono, K., Ito, T., Kamikokuryo, C., Niiyama, S., Yamada, S., Onishi, H., Yoshihara, H., Maruyama, I., & Kakihana, Y. (2023). Damage-associated molecular patterns and fibrinolysis perturbation are associated with lethal outcomes in traumatic injury. *Thrombosis Journal*, *21*(1), 91. <https://doi.org/10.1186/s12959-023-00536-w>

Shrestha, P., Subba, L., Agrawal, P., & Lohani, S. (2020). Outcome of transforaminal epidural steroid injection for lumbar radiculopathy: initial three-year experience at Upendra Devkota Memorial-National Institute of Neurological and Allied Sciences, Nepal. *Chinese Neurosurgical Journal*, *6*(1), 6. <https://doi.org/10.1186/s41016-020-0184-5>

Spahr, N., Hodkinson, D., Jolly, K., Williams, S., Howard, M., & Thacker, M. (2017). Distinguishing between nociceptive and neuropathic components in chronic low back pain using behavioural evaluation and sensory examination. *Musculoskeletal Science & Practice*, *27*, 40. <https://doi.org/10.1016/J.MSKSP.2016.12.006>

Teodorczyk-Injeyan, J. A., Khella, H., & Injeyan, H. S. (2023). Clinical Biomarker of Sterile Inflammation, HMGB1, in Patients with Chronic Non-Specific Low Back Pain: A Pilot Cross-Sectional Study. *Life (Basel, Switzerland)*, *13*(2). <https://doi.org/10.3390/LIFE13020468>

Urits, I., Burshtein, A., Sharma, M., Testa, L., Gold, P. A., Orhurhu, V., vanath, O., Jones, M. R., Sidransky, M. A., Spektor, B., & Kaye, A. (2019). Low Back Pain, a Comprehensive Review: Pathophysiology,



- Diagnosis, and Treatment. In *Current Pain and Headache Reports* (Vol. 23, Issue 3). <https://doi.org/10.1007/s11916-019-0757-1>
- Veihelmann, A. (2020). Spine injections in athletes. *Sportverletzung-Sportschaden*, 34(1), 33–41. <https://doi.org/10.1055/a-0751-0583>
- Wahid, S., & Miskad, U. A. (2019). *Immunologi lebih mudah dipahami* (A. Wijaya (ed.); Cetakan ke). Brilian Internasional.
- Yang, H., Zeng, Q., Silverman, H. A., Gunasekaran, M., George, S. J., Devarajan, A., Addorisio, M. E., Li, J., Tsaava, T., Shah, V., Billiar, T. R., Wang, H., Brines, M., Andersson, U., Pavlov, V. A., Chang, E. H., Chavan, S. S., & Tracey, K. J. (2021). HMGB1 released from nociceptors mediates inflammation. *Proceedings of the National Academy of Sciences of the United States of America*, 118(33). <https://doi.org/10.1073/pnas.2102034118>
- Yurube, T., Sakai, D., Kusakabe, T., Sawaji, Y., Endo, K., Suzuki, H., Konishi, T., Maekawa, A., Murata, K., & Yamamoto, K. (2021). *DUSP-1 Induced by PGE 2 and PGE 1 Attenuates IL-1 β -Activated MAPK Signaling, Leading to Suppression of NGF Expression in Human Intervertebral Disc Cells*. <https://doi.org/10.3390/ijms23010371>
- Zia, A., Imran, A., Majid, A., Zeb, A., Ali, S., & Khan, F. (2019). Efficacy of epidural steroid injection in relieving chronic lower back pain. *Pakistan Journal of Medical and Health Sciences*, 13(1), 320–322.



LAMPIRAN 1 Surat Rekomendasi Etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
 UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
 KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
 RSPN 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. Agusssalim Bukhari, M.Med, Ph.D, SpGK TELP. 081241850058, 0411 5780103, Fax : 0411-581431



REKOMENDASI PERSETUJUAN ETIK

Nomor: 505/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 24 Juli 2023

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

No Protokol	UH23040217		No Sponsor	
Peneliti Utama	dr. Nurussyariah, M.AppSci, Sp.N(K)		Sponsor	
Judul Peneliti	Luaran Klinis Nyeri Radikular Lumbosakral Kronik Setelah Pemberian Triamsinolon Epidural: Analisis Kadar High Mobility Group Box-1 dan NGF Serum			
No Versi Protokol	2	Tanggal Versi	17 Juli 2023	
No Versi PSP	2	Tanggal Versi	17 Juli 2023	
Tempat Penelitian	RSUP Dr. Wahidin Sudirohusodo dan RS Jejaring Makassar			
Jenis Review	<input type="checkbox"/> Exempted	Masa Berlaku	Frekuensi review lanjutan	
	<input type="checkbox"/> Expedited	24 Juli 2023 sampai 24 Juli 2024		
	<input checked="" type="checkbox"/> Fullboard Tanggal 17 Mei 2023			
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan		
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agusssalim Bukhari, M.Med.,Ph.D.,Sp.GK (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 protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan





KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
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SURAT PERSETUJUAN

Yang bertanda tangan dibawahi ini :

Nama : Dr. dr. Irfan Idris, M.Kes
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Jabatan : Ketua Program Studi Doktor Ilmu Kedokteran

Menyetujui mahasiswa tersebut dibawah ini :

Nama : **Nurussyariah**
Nomor Pokok : C013201017
Program Studi : Doktor Ilmu Kedokteran
Judul Penelitian :

LUARAN KLINIS NYERI RADIKULAR LUMBOSAKRAL KRONIK SETELAH PEMBERIAN TRIAMINOLON
EPIDURAL: ANALISIS KADAP. HIGH MOBILITY GROUP BOX-1 dan NGF SERUM

Makassar, 8 Agustus 2022
Ketua Program Studi S3
Ilmu Kedokteran

Dr. dr. Irfan Idris, M.Kes
NIP. 196711031998021001



LAMPIRAN 2 Uji Statistik

```

REGRESSION
  /SELECT=GrupKode EQ 1
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT DeltaNPRS
  /METHOD=ENTER DeltaHMGB DeltaNGF.
    
```

Regression

Notes		
Output Created		19-OCT-2023 21:08:35
Comments		
Input	Data	C:\Users\LENOVO\Desktop\HMGB-1\HASIL\Statistik\Hasil_S3.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /SELECT=GrupKode EQ 1 /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT DeltaNPRS /METHOD=ENTER DeltaHMGB DeltaNGF.



Resources	Processor Time	00:00:00,00
	Elapsed Time	00:00:00,01
	Memory Required	4176 bytes
	Additional Memory Required for Residual Plots	0 bytes

Variables Entered/Removed^{a,b}

Model	Variables Entered	Variables Removed	Method
1	DeltaNGF, Delta HMGB1 ^c	.	Enter

a. Dependent Variable: Delta Skala Nyeri

b. Models are based only on cases for which Kelompok Sampel = Intervensi

c. All requested variables entered.

Model Summary

Model	R Kelompok Sampel = Intervensi (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.552 ^a	.304	.263	1.193

a. Predictors: (Constant), DeltaNGF, Delta HMGB1

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.168	2	10.584	7.435	.002 ^c
	Residual	48.400	34	1.424		
	Total	69.568	36			

a. Dependent Variable: Delta Skala Nyeri

b. Selecting only cases for which Kelompok Sampel = Intervensi

c. Predictors: (Constant), DeltaNGF, Delta HMGB1

Coefficients^{a,b}

Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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		B	Std. Error	Beta		
1	(Constant)	1.604	.252		6.356	.000
	Delta HMGB1	.000	.000	.123	.853	.400
	DeltaNGF	.253	.066	.557	3.847	.001

a. Dependent Variable: Delta Skala Nyeri

b. Selecting only cases for which Kelompok Sampel = Intervensi

```

REGRESSION
  /SELECT=GrupKode EQ 2
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT DeltaNPRS
  /METHOD=ENTER DeltaHMGB DeltaNGF.

```

Regression

Variables Entered/Removed^{a,b}

Model	Variables Entered	Variables		Method
		Entered	Removed	
1	DeltaNGF, Delta HMGB1 ^c			Enter

a. Dependent Variable: Delta Skala Nyeri

b. Models are based only on cases for which Kelompok Sampel = Kontrol

c. All requested variables entered.

Variables Entered/Removed^{a,b}

Model	Variables		Method
	Entered	Removed	
1	DeltaNGF, Delta HMGB1 ^c		Enter

a. Dependent Variable: Delta Skala Nyeri

b. Models are based only on cases for which Kelompok

Sampel = Kontrol

c. All requested variables entered.



Model Summary				
Model	R Kelompok Sampel = Kontrol (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.194 ^a	.038	-.075	.884
a. Predictors: (Constant), DeltaNGF, Delta HMGB1				

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.521	2	.260	.333	.721 ^c
	Residual	13.279	17	.781		
	Total	13.800	19			

a. Dependent Variable: Delta Skala Nyeri

b. Selecting only cases for which Kelompok Sampel = Kontrol

c. Predictors: (Constant), DeltaNGF, Delta HMGB1

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	1.020	.234		4.360	.000
	Delta HMGB1	.000	.000	.140	.587	.565
	DeltaNGF	.052	.102	.122	.512	.615

a. Dependent Variable: Delta Skala Nyeri

b. Selecting only cases for which Kelompok Sampel = Kontrol



```

REGRESSION
  /SELECT=GrupKode EQ 1
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT DeltaODI
  /METHOD=ENTER DeltaHMGB DeltaNGF.

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Regression

Notes		
Output Created		19-OCT-2023 21:41:25
Comments		
Input	Data	C:\Users\LENOVO\Desktop\HMG-GB-1\HASIL\Statistik\Hasil_S3.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	57
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /SELECT=GrupKode EQ 1 /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT DeltaODI /METHOD=ENTER DeltaHMGB DeltaNGF.
	Processor Time	00:00:00,00



Elapsed Time	00:00:00,01
Memory Required	4176 bytes
Additional Memory Required for Residual Plots	0 bytes

Variables Entered/Removed^{a,b}

Model	Variables Entered	Variables Removed	Method
1	DeltaNGF, Delta HMGB1 ^c		. Enter

a. Dependent Variable: DeltaODI

b. Models are based only on cases for which Kelompok Sampel = Intervensi

c. All requested variables entered.

Model Summary

Model	R Kelompok Sampel = Intervensi (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.429 ^a	.184	.136	1.783

a. Predictors: (Constant), DeltaNGF, Delta HMGB1

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.338	2	12.169	3.828	.032
	Residual	108.094	34	3.179		
	Total	132.432	36			



Dependent Variable: DeltaODI

only cases for which Kelompok Sampel = Intervensi

c. Predictors: (Constant), DeltaNGF, Delta HMGB1

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	9.993	.377		26.496	.000
	Delta HMGB1	.000	.000	-.144	-.916	.366
	DeltaNGF	.240	.098	.383	2.440	.020

a. Dependent Variable: DeltaODI

b. Selecting only cases for which Kelompok Sampel = Intervensi

```

REGRESSION
  /SELECT=GrupKode EQ 2
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT DeltaODI
  /METHOD=ENTER DeltaHMGB DeltaNGF
  /RESIDUALS NORMPROB(ZRESID).
  
```

Regression

Notes

Output Created	19-OCT-2023 22:04:28	
Comments		
Input	Data	C:\Users\LENOVO\Desktop\HMB-GB-1\HASIL\Statistik\Hasil_S3.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	57
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.



Syntax	REGRESSION /SELECT=GrupKode EQ 2 /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT DeltaODI /METHOD=ENTER DeltaHMGB DeltaNGF /RESIDUALS NORMPROB(ZRESID).	
Resources	Processor Time	00:00:01,30
	Elapsed Time	00:00:02,23
	Memory Required	4192 bytes
	Additional Memory Required for Residual Plots	280 bytes

Variables Entered/Removed^{a,b}

Model	Variables Entered	Variables Removed	Method
1	DeltaNGF, Delta HMGB1 ^c	.	Enter

a. Dependent Variable: DeltaODI

b. Models are based only on cases for which Kelompok Sampel = Kontrol

c. All requested variables entered.

Model Summary^{b,c}

Model	R Kelompok Sampel = Kontrol (Selected)	R Kelompok Sampel ~= Kontrol (Unselected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.170 ^a	.	.029	-.085	2.084

Variables: (Constant), DeltaNGF, Delta HMGB1

noted otherwise, statistics are based only on cases for which Kelompok Sampel = Kontrol.



c. Dependent Variable: DeltaODI

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.199	2	1.100	.253	.779 ^c
	Residual	73.801	17	4.341		
	Total	76.000	19			

a. Dependent Variable: DeltaODI

b. Selecting only cases for which Kelompok Sampel = Kontrol

c. Predictors: (Constant), DeltaNGF, Delta HMGB1

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.796	.551		10.513	.000
	Delta HMGB1	.000	.001	.161	.672	.511
	DeltaNGF	.041	.241	.041	.172	.865

a. Dependent Variable: DeltaODI

b. Selecting only cases for which Kelompok Sampel = Kontrol



LAMPIRAN 3 Angket Oswestry Disability Index

Angket “Modified Oswestry Low Back Pain Disability Questionnaire”

Nama:

Umur:

Tgl Pemeriksaan

Berikan tanda \surd pada salah satu pilihan jawaban yang paling menggambarkan keadaan anda.

1. Intensitas nyeri

- Saat ini saya tidak nyeri (Nilai : 0)
- Saat ini nyeri terasa sangat ringan (Nilai : 1)
- Saat ini nyeri terasa ringan (Nilai : 2)
- Saat ini nyeri terasa agak berat (Nilai : 3)
- Saat ini nyeri terasa sangat berat (Nilai : 4)
- Saat ini nyeri terasa amat sangat berat (Nilai : 5)

2. Perawatan diri (mandi, berpakaian dll)

- Saya merawat diri secara normal tanpa disertai timbulnya nyeri (Nilai : 0)
- Saya merawat diri secara normal tetapi terasa sangat nyeri (Nilai : 1)
- Saya merawat diri secara hati-hati dan lamban karena terasa sangat nyeri (Nilai : 2)
- Saya memerlukan sedikit bantuan saat merawat diri (Nilai : 3)
- Setiap hari saya memerlukan bantuan saat merawat diri (Nilai : 4)
- Saya tidak bisa berpakaian dan mandi sendiri, hanya tiduran di bed (Nilai : 5)

3. Aktifitas Mengangkat

- Saya dapat mengangkat benda berat tanpa disertai timbulnya nyeri (Nilai : 0)
- Saya dapat mengangkat benda berat tetapi disertai timbulnya nyeri (Nilai : 1)
- Nyeri membuat saya tidak mampu mengangkat benda berat dari lantai, tetapi saya mampu mengangkat benda berat yang posisinya mudah, misalnya di atas meja. (Nilai : 2)
- Nyeri membuat saya tidak mampu mengangkat benda berat dari lantai, saya mampu mengangkat benda ringan dan sedang yang posisinya misalnya di atas meja. (Nilai : 3)
- Saya hanya dapat mengangkat benda yang sangat ringan (Nilai : 4)



o Saya tidak dapat mengangkat maupun membawa benda apapun (Nilai : 5)

4. Berjalan

o Saya mampu berjalan berapapun jaraknya tanpa disertai timbulnya nyeri (Nilai : 0)

o Saya hanya mampu berjalan tidak lebih dari 1 mil karena nyeri (Nilai : 1)

o Saya hanya mampu berjalan tidak lebih dari 1/4 mil karena nyeri (Nilai : 2)

o Saya hanya mampu berjalan tidak lebih dari 100 yard karena nyeri (Nilai : 3)

o Saya hanya mampu berjalan menggunakan alat bantu tongkat atau kruk (Nilai : 4)

o Saya hanya mampu tiduran, untuk ke toilet dengan merangkak (Nilai : 5)

5. Duduk o Saya mampu duduk pada semua jenis kursi selama aku mau (Nilai : 0)

o Saya mampu duduk pada kursi tertentu selama aku mau (Nilai : 1)

o Saya hanya mampu duduk pada kursi tidak lebih dari 1 jam karena nyeri (Nilai : 2)

o Saya hanya mampu duduk pada kursi tidak lebih dari 1/2 jam karena nyeri (Nilai : 3)

o Saya hanya mampu duduk pada kursi tidak lebih dari 10 menit karena nyeri (Nilai : 4)

o Saya tidak mampu duduk karena nyeri (Nilai : 5)

6. Berdiri

o Saya mampu berdiri selama aku mau (Nilai : 0)

o Saya mampu berdiri selama aku mau tetapi timbul nyeri (Nilai : 1)

o Saya hanya mampu berdiri tidak lebih dari 1 jam karena nyeri (Nilai : 2)

o Saya hanya mampu berdiri tidak lebih dari 1/2 jam karena nyeri (Nilai : 3)

o Saya hanya mampu berdiri tidak lebih dari 10 menit karena nyeri (Nilai : 4)

o Saya tidak mampu berdiri karena nyeri (Nilai : 5)

7. Tidur

o Tidurku tak pernah terganggu oleh timbulnya nyeri (Nilai : 0)

o Tidurku terkadang terganggu oleh timbulnya nyeri (Nilai : 1)

o Karena nyeri tidurku tidak lebih dari 6 jam (Nilai : 2)

o Karena nyeri tidurku tidak lebih dari 4 jam (Nilai : 3)

o Karena nyeri tidurku tidak lebih dari 2 jam (Nilai : 4)

o Saya tidak bisa tidur karena nyeri (Nilai : 5)



as Seksual (bila memungkinkan)

s seksualku berjalan normal tanpa disertai timbulnya nyeri (Nilai : 0)

- o Aktifitas seksualku berjalan normal tetapi disertai timbulnya nyeri (Nilai : 1)
- o Aktifitas seksualku berjalan hampir normal tetapi sangat nyeri (Nilai : 2)
- o Aktifitas seksualku sangat terhambat oleh adanya nyeri (Nilai : 3)
- o Aktifitas seksualku hampir tak pernah karena adanya nyeri (Nilai : 4)
- o Aktifitas seksualku tidak pernah bisa terlaksana karena nyeri (Nilai : 5)

9. Kehidupan Sosial

- o Kehidupan sosialku berlangsung normal tanpa gangguan nyeri (Nilai : 0)
- o Kehidupan sosialku berlangsung normal tetapi ada peningkatan derajat nyeri (Nilai : 1) 50
- o Kehidupan sosialku yang aku sukai misalnya olahraga tidak begitu terganggu adanya nyeri (Nilai : 2)
- o Nyeri menghambat kehidupan sosialku sehingga aku jarang keluar rumah (Nilai : 3)
- o Nyeri membuat kehidupan sosialku hanya berlangsung di rumah saja (Nilai : 4)
- o Saya tidak mempunyai kehidupan sosial karena nyeri (Nilai : 5)

10. Bepergian / Melakukan Perjalanan

- o Saya bisa melakukan perjalanan ke semua tempat tanpa adanya nyeri (Nilai : 0)
- o Saya bisa melakukan perjalanan ke semua tempat tetapi timbul nyeri (Nilai : 1)
- o Nyeri memang mengganggu tetapi saya bisa melakukan perjalanan lebih dari 2 jam (Nilai : 2)
- o Nyeri menghambatku sehingga saya hanya bisa melakukan perjalanan kurang dari 1 jam (Nilai : 3)
- o Nyeri menghambatku sehingga saya hanya bisa melakukan perjalanan pendek kurang dari 30 menit (Nilai : 4)
- o Nyeri menghambatku untuk melakukan perjalanan kecuali hanya berobat (Nilai : 5)

Interpretasi

Hasil Dari 10 pertanyaan, jumlahkan seluruh nilai yang didapat, lalu dihitung dengan rumus :

0% - 20 % ◊ Minimal disability : Pasien dapat melakukan aktivitas sehari-hari tanpa terganggu oleh rasa nyeri.

21% - 40% ◊ Moderate disability : Pasien merasakan nyeri yang lebih dan kesulitan dalam melakukan aktivitas sehari-hari seperti duduk, mengangkat barang dan berdiri.

41% - 100% ◊ Severe disability : Nyeri terasa sepanjang waktu dan aktivitas sehari-hari mulai terganggu karena rasa nyeri.



61% - 80% ◇ Crippled : Nyeri yang timbul mengganggu seluruh aktivitas sehari-hari. 81% - 100% ◇ Pasien sudah sangat tersiksa oleh nyeri yang timbul

