

Referensi

- Allen, L. M., Hasso, A. N., Handwerker, J., & Farid, H. (2012). Sequence-specific MR imaging findings that are useful in dating ischemic stroke. *Radiographics*, 32(5), 1285–1297. <https://doi.org/10.1148/rq.325115760>
- Alemseged, F., Rocco, A., Arba, F., Schwabova, J. P., Wu, T., Cavicchia, L., Ng, F., Ng, J. L., Zhao, H., Williams, C., Sallustio, F., Balabanski, A. H., Tomek, A., Parson, M. W., Mitchell, P. J., Diomedi, M., Yassi, N., Churilov, L., Davis, S. M., & Campbell, B. C. V. (2022). Posterior National Institutes of Health Stroke Scale Improves Prognostic Accuracy in Posterior Circulation Stroke. *Stroke*, 53(4), 1247–1255. <https://doi.org/10.1161/STROKEAHA.120.034019>
- Alonso de Leciñana, M., Egido, J. A., Casado, I., Ribó, M., Dávalos, A., Masjuan, J., Caniego, J. L., Martínez Vila, E., Díez Tejedor, E., Fuentes (Secretaría), B., Álvarez-Sabin, J., Arenillas, J., Calleja, S., Castellanos, M., Castillo, J., Díaz-Otero, F., López-Fernández, J. C., Freijo, M., Gállego, J., ... Vivancos, J. (2014). Guidelines for the treatment of acute ischaemic stroke. *Neurología (English Edition)*, 29(2), 102–122. <https://doi.org/10.1016/j.nrleng.2011.09.012>
- Amalia, L., Furqani, A., Parwati, I., Rizal, A., & Panigoro, R. (2020). Correlation between Alberta Stroke Programme Early Computed Tomography Score (ASPECTS) and National Institute of Health Stroke Score (NIHSS) in Ischemic Stroke. *Sains Malaysiana*, 49(5), 1115–1120. <https://doi.org/10.17576/jsm-2020-4905-16>
- Anadani, M., Turan, T. N., Yaghi, S., Spiotta, A. M., Gory, B., Sharma, R., Sheth, K. N., & de Havenon, A. (2023). Change in Smoking Behavior and Outcome After Ischemic Stroke: Post-Hoc Analysis of the SPS3 Trial. *Stroke*, 54(4), 921–927. <https://doi.org/10.1161/STROKEAHA.121.038202>
- Aracki-Trenkic, A., Law-ye, B., Radovanovic, Z., Stojanov, D., Dormont, D., & Pyatigorskaya, N. (2020). ASL perfusion in acute ischemic stroke: The value of CBF in outcome prediction. *Clinical Neurology and Neurosurgery*, 194, . <https://doi.org/10.1016/J.CLINEURO.2020.105908>
- Mehta, T. R. (2020). Role of the ketogenic diet in acute neurological s. In *Clinical Neurology and Neurosurgery* (Vol. 192, p. 105727). B.V. <https://doi.org/10.1016/j.clineuro.2020.105727>



- Bahouth, M. N., Gaddis, A., Hillis, A. E., & Gottesman, R. F. (2018). Pilot study of volume contracted state and hospital outcome after stroke. *Neurology: Clinical Practice*, 8(1), 21. <https://doi.org/10.1212/CPJ.0000000000000419>
- Baral, S., Pokhrel, A., Shyam, K. B. K., Kshetri, R., Regmi, P., & Gyawali, P. (2022). Dyslipidemia among Patients with Ischemic Stroke in the Department of Medicine of a Tertiary Care Centre: A Descriptive Cross-sectional Study. *JNMA: Journal of the Nepal Medical Association*, 60(250), 511. <https://doi.org/10.31729/JNMA.7491>
- Baranovicova, Eva & Grendár, Marian & Kalenská, Dagmar & Tomascova, Anna & Čierny, Daniel & Lehotský, Jan. (2018). NMR metabolomic study of blood plasma in ischemic and ischemically preconditioned rats: an increased level of ketone bodies and decreased content of glycolytic products 24 h after global cerebral ischemia. *Journal of Physiology and Biochemistry*. 74. 10.1007/s13105-018-0632-2
- Barber, P. A., Demchuk, A. M., Zhang, J., & Buchan, A. M. (2000). Validity and reliability of a quantitative computed tomography score in predicting outcome of hyperacute stroke before thrombolytic therapy. ASPECTS Study Group. Alberta Stroke Programme Early CT Score. *Lancet (London, England)*, 355(9216), 1670–1674. [https://doi.org/10.1016/s0140-6736\(00\)02237-6](https://doi.org/10.1016/s0140-6736(00)02237-6)
- Barker, P. (2001). Magnetic resonance spectroscopy in cerebral ischemia and infarction. *Seminars in Cerebrovascular Diseases and Stroke*, 1(4), 331–342. <https://doi.org/10.1053/SCDS.2001.29101>
- Bendszus, M. A., Möhlenbruch, T., Boujan, U., Neuberger, J., Pfaff, S., Nagel, C., Herweh, M., Boujan, X. T., Neuberger, X. U., Pfaff, X. J., Nagel, X. S., Herweh, X. C., Bendszus, X. M., & Möhlenbruch, X. M. A. (2018). Value of Contrast-Enhanced MRA versus Time-of-Flight MRA in Acute Ischemic Stroke MRI. *American Journal of Neuroradiology*, 39(9), 1710–1716. <https://doi.org/10.3174/AJNR.A5771>
- Berrington, A., Schreck, K. C., Barron, B. J., Blair, L., Lin, D., Hartman, A. L., Kossoff, E., Easter, L., Whitlow, C. T., Jung, Y., Hsu, F. C., Cervenka, M. C., γ, J. O., Barker, P. B., & Strowd, R. E. (2019). Cerebral Ketones d by 3T MR Spectroscopy in Patients with High-Grade Glioma on an 3ased Diet. *AJNR. American journal of neuroradiology*, 40(11), 1908–
<https://doi.org/10.3174/ajnr.A6287>
- Cecil, K. M. (2013). *Proton Magnetic*



Resonance Spectroscopy Technique for the Neuroradiologist.

<https://doi.org/10.1016/j.nic.2012.10.003>

Bhagia, G., & Kumar, S. (2020). Early MRI Versus CT Scan for Evaluation of Cerebrovascular Events in a Community Hospital: A Cost Minimization Analysis. *Cureus*, 12(12). <https://doi.org/10.7759/CUREUS.12127>

Bivard, A., Yassi, N., Krishnamurthy, V., Lin, L., Levi, C., Spratt, N. J., Mittef, F., Davis, S., & Parsons, M. (2016). A comprehensive analysis of metabolic changes in the salvaged penumbra. *Neuroradiology*, 58(4), 409–415. <https://doi.org/10.1007/S00234-015-1638-X>

Boehme, A. K., Esenwa, C., & Elkind, M. S. V. (2017). Stroke Risk Factors, Genetics, and Prevention. *Circulation Research*, 120(3), 472. <https://doi.org/10.1161/CIRCRESAHA.116.308398>

Bulakbasi, N. (2004). Clinical applications of proton MR spectroscopy in the diagnosis of brain tumours. *Spectroscopy*, 18(2), 143–153. <https://doi.org/10.1155/2004/381453>

Cecil, K. M. (2013). *Proton Magnetic Resonance Spectroscopy Technique for the Neuroradiologist.* <https://doi.org/10.1016/j.nic.2012.10.003>

Chalela, J. A., Kidwell, C. S., Nentwich, L. M., Luby, M., Butman, J. A., Demchuk, A. M., Hill, M. D., Patronas, N., Latour, L., & Warach, S. (2007). Magnetic resonance imaging and computed tomography in emergency assessment of patients with suspected acute stroke: a prospective comparison. *Lancet*, 369(9558), 293. [https://doi.org/10.1016/S0140-6736\(07\)60151-2](https://doi.org/10.1016/S0140-6736(07)60151-2)

Chalela, J. A., Alsop, D. C., Gonzalez-Atavales, J. B., Maldjian, J. A., Kasner, S. E., & Detre, J. A. (2000). Magnetic Resonance Perfusion Imaging in Acute Ischemic Stroke Using Continuous Arterial Spin Labeling. *Stroke*, 31(3), 680–687. <https://doi.org/10.1161/01.STR.31.3.680>

Cho, B. H., Cheon, K., Lee, K. Y., Jung, Y. H., Han, S. W., Park, J. H., Choi, H. Y., Cho, H. J., Park, H. J., Nam, H. S., Heo, J. H., Lee, H. S., Kim, S., & Kim, Y. D. (2020). Association between body mass index and stroke severity in acute ischaemic stroke with non-valvular atrial fibrillation. *European Journal of Neurology*, 27(8), 1672–1679. <https://doi.org/10.1111/ENE.14304>



okett, M. L., Hankey, G. J., Lundström, E., Almeida, O. P., Gommans, van, M., Jan, S., Mead, G. E., Ford, A. H., Beer, C. E., Flicker, L., Fort, C., Billot, L., Anderson, C. S., Sunnerhagen, K. S., Yi, Q.,

- Bompoint, S., Nguyen, T. H., & Lung, T. (2022). Repeated Measures of Modified Rankin Scale Scores to Assess Functional Recovery From Stroke: AFFINITY Study Findings. *Journal of the American Heart Association*, 11(16), 25425. <https://doi.org/10.1161/JAHA.121.025425/FORMAT/EPUB>
- Costantini, L. C., Barr, L. J., Vogel, J. L., & Henderson, S. T. (2008). Hypometabolism as a therapeutic target in Alzheimer's disease. *BMC Neuroscience*, 9(SUPPL. 2), 1–9. <https://doi.org/10.1186/1471-2202-9-S2-S16>
- Courchesne-Loyer, A., Croteau, E., Castellano, C. A., St-Pierre, V., Hennebelle, M., & Cunnane, S. C. (2017). Inverse relationship between brain glucose and ketone metabolism in adults during short-term moderate dietary ketosis: A dual tracer quantitative positron emission tomography study. *Journal of Cerebral Blood Flow & Metabolism*, 37(7), 2485. <https://doi.org/10.1177/0271678X16669366>
- Dai, L., Wang, A., Gu, H., Zhang, Y., Zuo, Y., Meng, X., Chen, P., Tian, X., Li, H., & Wang, Y. (2023). Urinary ketone bodies and stroke recurrence in patient with acute ischemic stroke or TIA. *Journal of Clinical Neuroscience*, 117, 79–83. <https://doi.org/10.1016/J.JOCN.2023.09.019>
- Dani, K. A., An, L., Henning, E. C., Shen, J., & Warach, S. (2012). Multivoxel MR spectroscopy in acute ischemic stroke: Comparison to the stroke protocol MRI. *Stroke*, 43(11), 2962–2967. <https://doi.org/10.1161/STROKEAHA.112.656058>
- de Havenon, A., Tirschwell, D. L., Heitsch, L., Cramer, S. C., Braun, R., Cole, J., Reddy, V., Majersik, J. J., Lindgren, A., & Worrall, B. B. (2021). Variability of the Modified Rankin Scale Score Between Day 90 and 1 Year After Ischemic Stroke. *Neurology: Clinical Practice*, 11(3), e239. <https://doi.org/10.1212/CPJ.0000000000000954>
- Dhamija, R., Eckert, S., & Wirrell, E. (2013). Ketogenic diet. *Canadian Journal of Neurological Sciences*, 40(2), 158–167. <https://doi.org/p>
- Dhatariva, K. (2016). Blood Ketones: Measurement, Interpretation, Limitations, and n the Management of Diabetic Ketoacidosis. *The Review of Diabetic s: RDS*, 13(4), 217. <https://doi.org/10.1900/RDS.2016.13.217>
- ., Shah, G. L., Joshi, D., & Gyanpuri, V. (2014). Relationship between hemiparesis and functional independence using activities of daily



- living index. *Journal of the Anatomical Society of India*, 63(S3), S30–S35.
<https://doi.org/10.1016/J.JASI.2014.10.002>
- Ding, G. Y., Xu, J. H., He, J. H., & Nie, Z. Y. (2022). Clinical scoring model based on age, NIHSS, and stroke-history predicts outcome 3 months after acute ischemic stroke. *Frontiers in Neurology*, 13.
<https://doi.org/10.3389/FNEUR.2022.935150>
- Elhabr, A. K., Katz, J. M., Wang, J., Bastani, M., Martinez, G., Gribko, M., Hughes, D. R., & Sanelli, P. (2021). Predicting 90-day Modified Rankin Scale score with discharge information in acute ischaemic stroke patients following treatment. *BMJ Neurology Open*, 3(1), 177. <https://doi.org/10.1136/BMJNO-2021-000177>
- Eren, F., Demir, A., & Eren, G. (2021). Association between the initial blood lactate level and prognosis in patients with stroke treated with intravenous thrombolysis. *Annals of Medical Research*, 28(5), 996.
<https://doi.org/10.5455/ANNALS MEDRES.2020.05.504>
- Ferris, J. K., Neva, J. L., Vavasour, I. M., Attard, K. J., Greeley, B., Hayward, K. S., Wadden, K. P., MacKay, A. L., & Boyd, L. A. (2021). Cortical N-acetylaspartate concentrations are impacted in chronic stroke but do not relate to motor impairment: A magnetic resonance spectroscopy study. *Human Brain Mapping*, 42(10), 3119–3130.
<https://doi.org/10.1002/HBM.25421>
- Foroughi, M., Akhavanzanjani, M., Maghsoudi, Z., Ghiasvand, R., Khorvash, F., & Askari, G. (2013). Stroke and nutrition: A review of studies. In *International Journal of Preventive Medicine* (Vol. 4, Issue Suppl 2, pp. S165–S179). Isfahan University of Medical Sciences(IUMS).
- Furlanis, G., Ajčević, M., Stragapede, L., Lugnan, C., Ridolfi, M., Caruso, P., Naccarato, M., Ukmar, M., & Manganotti, P. (2018). Ischemic Volume and Neurological Deficit: Correlation of Computed Tomography Perfusion with the National Institutes of Health Stroke Scale Score in Acute Ischemic Stroke. *Journal of Stroke and Cerebrovascular Diseases*, 27(8), 2200–2207.
doi.org/10.1016/J.JSTROKECEREBROVASDIS.2018.04.003
- ajkar, A., Banerjee, P., Stead, T., Hanna, A., Tsau, J., Khan, M., & A. (2023). Impact of emergency department arrival time on door-to-



- needle time in patients with acute stroke. *Frontiers in Neurology*, 14. <https://doi.org/10.3389/FNEUR.2023.1126472>
- Gao, Y., Liu, X., Liu, K., & Xu, Y. (2023). Middle Cerebral Artery Stroke. *Encyclopedia of Gerontology and Population Aging*, 1–7. https://doi.org/10.1007/978-3-319-69892-2_1052-1
- Gensicke, H., Al-Ajlan, F., Fladt, J., Campbell, B. C. V., Majoie, C. B. L. M., Bracard, S., Hill, M. D., Muir, K. W., Demchuk, A., San Román, L., van der Lugt, A., Liebeskind, D. S., Brown, S., White, P. M., Guillemin, F., Dávalos, A., Jovin, T. G., Saver, J. L., Dippel, D. W. J., ... Menon, B. K. (2022). Comparison of Three Scores of Collateral Status for Their Association With Clinical Outcome: The HERMES Collaboration. *Stroke*, 53(12), 3548–3556. <https://doi.org/10.1161/STROKEAHA.122.039717>
- Gibson, L. M., & Whiteley, W. (2013). The differential diagnosis of suspected stroke: a systematic review. *The journal of the Royal College of Physicians of Edinburgh*, 43(2), 114–118. <https://doi.org/10.4997/JRCPE.2013.205>
- Gorelick, P. B. (2019). The global burden of stroke: persistent and disabling. *The Lancet Neurology*, 18(5), 417–418. [https://doi.org/10.1016/S1474-4422\(19\)30030-4](https://doi.org/10.1016/S1474-4422(19)30030-4)
- Grysiewicz, R. A., Thomas, K., & Pandey, D. K. (2008). Epidemiology of Ischemic and Hemorrhagic Stroke: Incidence, Prevalence, Mortality, and Risk Factors. In *Neurologic Clinics* (Vol. 26, Issue 4, pp. 871–895). Elsevier. <https://doi.org/10.1016/j.ncl.2008.07.003>
- Guo, Y., Li, P., Guo, Q., Shang, K., Yan, D., Du, S., & Lu, Y. (2013). Pathophysiology and biomarkers in acute ischemic stroke - A review. In *Tropical Journal of Pharmaceutical Research* (Vol. 12, Issue 6, pp. 1097–1105). <https://doi.org/10.4314/tjpr.v12i6.35>
- Hajishafiee, M., Ghiasvand, R., Darvishi, L., Maghsoudi, Z., Ghasemi, S., Hariri, M., Khorvash, F., Iraj, B., & Askari, G. (2013). Dietary Intake of Different Carbohydrates Among Incident Stroke Patients During Previous Year. *International Journal of Preventive Medicine*, 4(Suppl 2), S290.
- Hall, M. E. (n.d.). Lipid Metabolism. In *Guyton and Hall Textbook of Human Physiology* (pp. 853–864). Retrieved October 25, 2021, from www.clinicalkey.com#!/content/book/3-s2.0-323597128000692?scrollTo=%23hl0000282



- Haris, M., Cai, K., Singh, A., Hariharan, H., & Reddy, R. (2011). In vivo mapping of brain myo-inositol. *NeuroImage*, 54(3), 2079–2085. <https://doi.org/10.1016/J.NEUROIMAGE.2010.10.017>
- Harrison, J. K., McArthur, K. S., & Quinn, T. J. (2013). Assessment scales in stroke: Clinimetric and clinical considerations. In *Clinical Interventions in Aging* (Vol. 8, pp. 201–211). Dove Press. <https://doi.org/10.2147/CIA.S32405>
- Hashim, S. A., & VanItallie, T. B. (2014). Ketone body therapy: From the ketogenic diet to the oral administration of ketone ester. In *Journal of Lipid Research* (Vol. 55, Issue 9, pp. 1818–1826). American Society for Biochemistry and Molecular Biology Inc. <https://doi.org/10.1194/jlr.R046599>
- Hedna, V. S., Bodhit, A. N., Ansari, S., Falchook, A. D., Stead, L., Heilman, K. M., & Waters, M. F. (2013). Hemispheric Differences in Ischemic Stroke: Is Left-Hemisphere Stroke More Common? *Journal of Clinical Neurology* (Seoul, Korea), 9(2), 97. <https://doi.org/10.3988/JCN.2013.9.2.97>
- Herpe, G., Giraud, C., Thomas, C., Neau, J., Velasco, S., Dumas, V., Pellerin, L., Guillevin, C., & Guillevin, R. (2023). Early Metabolic Alteration Predicts Outcome With Middle Cerebral Artery Occlusion Treated by Mechanical Thrombectomy. *Stroke: Vascular and Interventional Neurology*, 3(6). <https://doi.org/10.1161/SVIN.123.000972>
- Hirai, T., Sasaki, M., Maeda, M., Ida, M., Katsuragawa, S., Sakoh, M., Takano, K., Arai, S., Hirano, T., Kai, Y., Kakeda, S., Murakami, R., Ikeda, R., Fukuoka, H., Sasao, A., & Yamashita, Y. (2009). Diffusion-weighted Imaging in Ischemic Stroke: Effect of Display Method on Observers' Diagnostic Performance. *Academic Radiology*, 16(3), 305–312. <https://doi.org/10.1016/J.ACRA.2008.09.012>
- Horn, J. W., Feng, T., Morkedal, B., Strand, L. B., Horn, J., Mukamal, K., & Janszky, I. (2021). Obesity and Risk for First Ischemic Stroke Depends on Metabolic Syndrome: The HUNT Study. *Stroke*, 52(11), 3555–3561. <https://doi.org/10.1161/STROKEAHA.120.033016>
- Huj, F. K., Obuchowski, N. A., John, S., Toth, G., Katzan, I., Wisco, D., Cheng-E., Uchino, K., Man, S. M., & Hussain, S. (2017). ASPECTS discrepancies between CT and MR imaging: analysis and implications for protocols in acute ischemic stroke. *Journal of neurointerventional*, 9(3), 240–243. <https://doi.org/10.1136/neurintsurg-2015-012188>



- Hui C, Tadi P, Patti L. Ischemic Stroke. [Updated 2021 Jan 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499997/>
- Jensen, N. J., Wodschow, H. Z., Nilsson, M., & Rungby, J. (2020). Effects of ketone bodies on brain metabolism and function in neurodegenerative diseases. *International Journal of Molecular Sciences*, 21(22), 1–17. <https://doi.org/10.3390/IJMS21228767>
- Jeong, S. M., Lee, H. R., Han, K., Jeon, K. H., Kim, D., Yoo, J. E., Cho, M. H., Chun, S., Lee, S. P., Nam, K. W., & Shin, D. W. (2022). Association of Change in Alcohol Consumption with Risk of Ischemic Stroke. *Stroke*, 53(8), 2488–2496. <https://doi.org/10.1161/STROKEAHA.121.037590>
- Jones, T. A., & Adkins, D. L. (n.d.). *Motor System Reorganization After Stroke: Stimulating and Training Toward Perfection*. <https://doi.org/10.1152/physiol.00014.2015>
- Kamalian, S., & Lev, M. H. (2019). Stroke Imaging. In *Radiologic Clinics of North America* (Vol.57, pp. 717-32). Elsevier Ltd. <https://doi.org/10.1016/j.rcl.2019.02.001>
- Kim, B. J., Kang, H. G., Kim, H. J., Ahn, S. H., Kim, N. Y., Warach, S., & Kang, D. W. (2014). Magnetic resonance imaging in acute ischemic stroke treatment. *Journal of stroke*, 16(3), 131–145. <https://doi.org/10.5853/jos.2014.16.3.131>
- Kongsawasdi, S., Klaphajone, J., Watcharasaksilp, K., & Wivatvongvana, P. (2018). Prognostic Factors of Functional Recovery from Left Hemispheric Stroke. *TheScientificWorldJournal*, 2018, 4708230. <https://doi.org/10.1155/2018/4708230>
- Koppel, S. J., & Swerdlow, R. H. (2018). Neuroketotherapeutics: A modern review of a century-old therapy. In *Neurochemistry International* (Vol. 117, pp. 114–125). Elsevier Ltd. <https://doi.org/10.1016/j.neuint.2017.05.019>
- Kwah, L. K., Harvey, L. A., Diong, J., & Herbert, R. D. (2013). Models containing age and NIHSS predict recovery of ambulation and upper limb function six months after stroke: an observational study. *Journal of Physiotherapy*, 59(3), 37. [https://doi.org/10.1016/S1836-9553\(13\)70183-8](https://doi.org/10.1016/S1836-9553(13)70183-8)
- G., Thijs, V. N., O'Brien, M. W., Ali, J. O., de Crespigny, A. J., Tong, Moseley, M. E., & Albers, G. W. (2001). Evolution of Apparent Diffusion



- Coefficient, Diffusion-weighted, and T2-weighted Signal Intensity of Acute Stroke. *American Journal of Neuroradiology*, 22(4).
- Lawrence, E. S., Coshall, C., Dundas, R., Stewart, J., Rudd, A. G., Howard, R., & Wolfe, C. D. (2001). Estimates of the prevalence of acute stroke impairments and disability in a multiethnic population. *Stroke*, 32(6), 1279–1284. <https://doi.org/10.1161/01.str.32.6.1279>
- Lee, J. W., Sreepada, L., Bevers, M., Li, K., Scirica, B., Silva, D. S. da, Henderson, G. v., Bay, C., & Lin, A. P. (2021). Magnetic resonance spectroscopy of anoxic brain injury after cardiac arrest. *MedRxiv*, 2021.05.13.21257029. <https://doi.org/10.1101/2021.05.13.21257029>
- Leonards, C. O., Ipsen, N., Malzahn, U., Fiebach, J. B., Endres, M., & Ebinger, M. (2012). White matter lesion severity in mild acute ischemic stroke patients and functional outcome after 1 year. *Stroke*, 43(11), 3046–3051. <https://doi.org/10.1161/STROKEAHA.111.646554>
- Li, A. le, Ji, Y., Zhu, S., Hu, Z. hao, Xu, X. jin, Wang, Y. wei, & Jian, X. zhi. (2022). Risk probability and influencing factors of stroke in followed-up hypertension patients. *BMC Cardiovascular Disorders*, 22(1), 1–10. <https://doi.org/10.1186/S12872-022-02780-W/TABLES/2>
- Lin, A. Q., Shou, J. X., Li, X. Y., Ma, L., & Zhu, X. H. (2013). Metabolic changes in acute cerebral infarction: Findings from proton magnetic resonance spectroscopic imaging. *Experimental and Therapeutic Medicine*, 7(2), 451–455. <https://doi.org/10.3892/etm.2013.1418>
- Li, X., Wang, Y., Wang, Z., Lu, J., Xu, Y., Ye, J., Kuang, Z., Li, B., Pan, M., Chen, W., Lu, S., Zhou, Z., Cheng, L., & Wang, H. (2018). Comparison of magnetic resonance spectroscopy (MRS) with arterial spin labeling (ASL) in the differentiation between mitochondrial encephalomyopathy, lactic Acidosis, plus stroke-like episodes (MELAS) and acute ischemic stroke (AIS). *Journal of Clinical Neuroscience*, 55, 65–70. <https://doi.org/10.1016/j.jocn.2018.06.015>
- Li, Y., Lafontaine, M., Chang, S., & Nelson, S. J. (2018). Comparison between Shorting Echo Time Magnetic Resonance Spectroscopic Imaging at 3T and Evaluating Brain Metabolites in Patients with Glioma. *ACS chemical science*, 9(1), 130–137. <https://doi.org/10.1021/acscchemneuro.7b00286>



- Liu, C. H., Wei, Y. C., Lin, J. R., Chang, C. H., Chang, T. Y., Huang, K. L., Chang, Y. J., Ryu, S. J., Lin, L. C., & Lee, T. H. (2016). Initial blood pressure is associated with stroke severity and is predictive of admission cost and one-year outcome in different stroke subtypes: a SRICHS registry study. *BMC Neurology*, 16(1). <https://doi.org/10.1186/S12883-016-0546-Y>
- Lu, W. Z., Lin, H. A., Bai, C. H., & Lin, S. F. (2021). Posterior circulation acute stroke prognosis early CT scores in predicting functional outcomes: A meta-analysis. *PloS one*, 16(2), e0246906. <https://doi.org/10.1371/journal.pone.0246906>
- Maalouf, M., Rho, J. M., & Mattson, M. P. (2009). The neuroprotective properties of calorie restriction, the ketogenic diet, and ketone bodies. In *Brain Research Reviews* (Vol. 59, Issue 2, pp. 293–315). NIH Public Access. <https://doi.org/10.1016/j.brainresrev.2008.09.002>
- Makharia, A., Agarwal, A., Garg, D., Vishnu, V. Y., & Srivastava, M. V. P. (2024). The Pitfalls of NIHSS: Time for a New Clinical Acute Stroke Severity Scoring System in the Emergency? *Annals of Indian Academy of Neurology*, 27(1), 15–18. https://doi.org/10.4103/AIAN.AIAN_842_23
- Makievskaya, C. I., Popkov, V. A., Andrianova, N. V., Liao, X., Zorov, D. B., & Plotnikov, E. Y. (2023). Ketogenic Diet and Ketone Bodies against Ischemic Injury: Targets, Mechanisms, and Therapeutic Potential. *International journal of molecular sciences*, 24(3), 2576. <https://doi.org/10.3390/ijms24032576>
- Mathers, C. D., & Loncar, D. (2005). *Updated projections of global mortality and burden of disease, 2002-2030: data sources, methods and results. Evidence and Information for Policy Working Paper Evidence and Information for Policy World Health Organization.*
- Martynov, M. Y., & Gusev, E. I. (2015). Current knowledge on the neuroprotective and neuroregenerative properties of citicoline in acute ischemic stroke. *Journal of Experimental Pharmacology*, 7, 17. <https://doi.org/10.2147/JEP.S63544>
- McDonald. T. J. W., & Cervenka, M. C. (2018). The expanding role of Ketogenic diet in adult neurological disorders. In *Brain Sciences* (Vol. 8, Issue 8). MDPI. <https://doi.org/10.3390/brainsci8080148>
- Michel, P., Eskandari, A., & Michel, P. (2020). Sex differences in acute ischemic stroke patients: clinical presentation, causes and outcomes.



European Journal of Neurology, 27(8), 1680–1688.

<https://doi.org/10.1111/ENE.14299>

Mistry, E. A., Yeatts, S., de Havenon, A., Mehta, T., Arora, N., de Los Rios La Rosa, F., Starosciak, A. K., Siegler, J. E., Mistry, A. M., Yaghi, S., & Khatri, P. (2021). Predicting 90-Day Outcome After Thrombectomy: Baseline-Adjusted 24-Hour NIHSS Is More Powerful Than NIHSS Score Change. *Stroke*, 52(8), 2547–2553. <https://doi.org/10.1161/STROKEAHA.120.032487>

Moffett, J. R., Ross, B., Arun, P., Madhavarao, C. N., & Namboodiri, A. M. (2007). N-Acetylaspartate in the CNS: from neurodiagnostics to neurobiology. *Progress in neurobiology*, 81(2), 89–131. <https://doi.org/10.1016/j.pneurobio.2006.12.003>

Mosenzon, O., Cheng, A. Y. Y., Rabinstein, A. A., & Sacco, S. (2023). Diabetes and Stroke: What Are the Connections? *Journal of Stroke*, 25(1), 26–38. <https://doi.org/10.5853/JOS.2022.02306>

Muñoz Maniega, S., Cvorovic, V., Chappell, F. M., Armitage, P. A., Marshall, I., Bastin, M. E., & Wardlaw, J. M. (2008). Changes in NAA and lactate following ischemic stroke: A serial MR spectroscopic imaging study. *Neurology*, 71(24), 1993–1999. <https://doi.org/10.1212/01.wnl.0000336970.85817.4a>

Nacu, A., Bringeland, G. H., Khanevski, A., Thomassen, L., Waje-Andreassen, U., & Naess, H. (2016). Early neurological worsening in acute ischaemic stroke patients. *Acta Neurologica Scandinavica*, 133(1), 25. <https://doi.org/10.1111/ANE.12418>

Nicolas-Jilwan, M., & Wintermark, M. (2021). Automated Brain Perfusion Imaging in Acute Ischemic Stroke: Interpretation Pearls and Pitfalls. *Stroke*, 52(11), 3728–3738. <https://doi.org/10.1161/STROKEAHA.121.035049>

Ng, Y. S., Stein, J., Ning, M., & Black-Schaffer, R. M. (2007). Comparison of Clinical Characteristics and Functional Outcomes of Ischemic Stroke in Different Vascular Territories. <https://doi.org/10.1161/STROKEAHA.106.475483>

Ojaghihaghghi, S., Vahdati, S. S., Mikaeilpour, A., & Ramouz, A. (2017). Comparison of neurological clinical manifestation in patients with haemagic and ischemic stroke. *World Journal of Emergency Medicine*, 4. <https://doi.org/10.5847/wjem.i.1920-8642.2017.01.006>



M. A., Akinlade, A. T., Fawale, M. B., & Ogbera, A. O. (2016). Anaemia as a risk factor in the occurrence of stroke in Nigeria:

- prevalence and patterns. *The Pan African Medical Journal*, 25. <https://doi.org/10.11604/PAMJ.2016.25.72.6496>
- Omori, N. E., Woo, G. H., & Mansor, L. S. (2022). Exogenous Ketones and Lactate as a Potential Therapeutic Intervention for Brain Injury and Neurodegenerative Conditions. *Frontiers in Human Neuroscience*, 16, 251. <https://doi.org/10.3389/FNHUM.2022.846183/BIBTEX>
- Ospel, J. M., Hill, M. D., Menon, B. K., Demchuk, A., McTaggart, R., Nogueira, R., Poppe, A., Haussen, D., Qiu, W., Mayank, A., Almekhlafi, M., Zerna, C., Joshi, M., Jayaraman, M., Roy, D., Rempel, J., Buck, B., Tymianski, M., & Goyal, M. (2021). Strength of Association between Infarct Volume and Clinical Outcome Depends on the Magnitude of Infarct Size: Results from the ESCAPE-NA1 Trial. *AJNR: American Journal of Neuroradiology*, 42(8), 1375. <https://doi.org/10.3174/AJNR.A7183>
- Öz, G., Alger, J. R., Barker, P. B., Bartha, R., Bizzi, A., Boesch, C., Bolan, P. J., Brindle, K. M., Cudalbu, C., Dinçer, A., Dydak, U., Emir, U. E., Frahm, J., Gilberto González, R., Gruber, S., Gruetter, R., Gupta, R. K., Heerschap, A., Henning, A., ... Kauppinen, R. A. (2014). Clinical proton MR spectroscopy in central nervous system disorders. In *Radiology* (Vol. 270, Issue 3, pp. 658–679). Radiological Society of North America Inc. <https://doi.org/10.1148/radiol.13130531>
- Paoli, A., Bosco, G., Camporesi, E. M., & Mangar, D. (2015). Ketosis, ketogenic diet and food intake control: A complex relationship. In *Frontiers in Psychology* (Vol. 6, Issue FEB). Frontiers Research Foundation. <https://doi.org/10.3389/fpsyg.2015.00027>
- Pape P.T., Sharp V.J.A., Rockafellow J. (2020) Urine Dipstick: An Approach to Glucosuria, Ketonuria, pH, Specific Gravity, Bilirubin and Urobilinogen – Undeniable Chemistry. In: Sharp V., Antes L., Sanders M., Lockwood G. (eds) *Urine Tests*. Springer, Cham. https://doi.org/10.1007/978-3-030-29138-9_7
- Parsons, M. W., Li, T., Barber, P. A., Yang, Q., Darby, D. G., Desmond, P. M., /, R. P., Tress, B. M., & Davis, S. M. (2000). Combined (1)H MR spectroscopy and diffusion-weighted MRI improves the prediction of stroke re. *Neurology*, 55(4), 498–505. <https://doi.org/10.1212/wnl.55.4.498>



- Peters, S. A. E., Carcel, C., Millett, E. R. C., & Woodward, M. (2020). Sex differences in the association between major risk factors and the risk of stroke in the UK Biobank cohort study. *Neurology*, 95(20), E2715–E2726. <https://doi.org/10.1212/WNL.0000000000010982/ASSET/60081ABD-0EFA-4399-986F-7CB225892270/ASSETS/GRAPHIC/6TTU1.JPEG>
- Poff, A. M., Moss, S., Soliven, M., & D'Agostino, D. P. (2021). Ketone Supplementation: Meeting the Needs of the Brain in an Energy Crisis. *Frontiers in nutrition*, 8, 783659. <https://doi.org/10.3389/fnut.2021.783659>
- Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., Biller, J., Brown, M., Demaerschalk, B. M., Hoh, B., Jauch, E. C., Kidwell, C. S., Leslie-Mazwi, T. M., Ovbiagele, B., Scott, P. A., Sheth, K. N., Southerland, A. M., Summers, D. V., & Tirschwell, D. L. (2018). 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke*, 49(3), e46–e110. <https://doi.org/10.1161/STR.0000000000000158>
- Prins, M. L., Fujima, L. S., & Hovda, D. A. (2005). Age-dependent reduction of cortical contusion volume by ketones after traumatic brain injury. *Journal of Neuroscience Research*, 82(3), 413–420. <https://doi.org/10.1002/jnr.20633>
- Provost, C., Soudant, M., Legrand, L., ben Hassen, W., Xie, Y., Soize, S., Bourcier, R., Benzakoun, J., Edjlali, M., Boulouis, G., Raoult, H., Guillemin, F., Naggara, O., Bracard, S., & Oppenheim, C. (2019). Magnetic Resonance Imaging or Computed Tomography Before Treatment in Acute Ischemic Stroke. *Stroke*, 50(3), 659–664. <https://doi.org/10.1161/STROKEAHA.118.023882>
- Quenardelle, V., Lauer-Ober, V., Zinchenko, I., Bataillard, M., Rouyer, O., Beaujeux, R., Pop, R., Meyer, N., Delplancq, H., Kremer, S., Marescaux, C., Gény, B., & Wolff, V. (2016). Stroke Mimics in a Stroke Care Pathway Based on MRI Screening. *Cerebrovascular diseases (Basel, Switzerland)*, 42(3-4), 205–212. <https://doi.org/10.1159/000445956>



Lin, A., & Stanwell, P. (2013). Glutamate and glutamine: a review of MRS in the human brain. *NMR in biomedicine*, 26(12), 1630–1646. doi.org/10.1002/nbm.3045

- Raghavan, S., Graff-Radford, J., Scharf, E., Przybelski, S. A., Lesnick, T. G., Gregg, B., Schwarz, C. G., Gunter, J. L., Zuk, S. M., Rabinstein, A., Mielke, M. M., Petersen, R. C., Knopman, D. S., Kantarci, K., Jack, C. R., & Vemuri, P. (2021). Study of Symptomatic vs. Silent Brain Infarctions on MRI in Elderly Subjects. *Frontiers in Neurology*, 12. <https://doi.org/10.3389/FNEUR.2021.615024>
- Rastogi, A., Weissert, R., & Bhaskar, S. M. M. (2023). Brain atrophy in acute ischaemic stroke patients treated with reperfusion therapy: a systematic review. *Acta Radiologica* (Stockholm, Sweden : 1987), 64(1), 257–266. <https://doi.org/10.1177/02841851211060427>
- Robertson, N., Lewis, R., Cowan, F. et al. (2001) Early Increases in Brain myo-Inositol Measured by Proton Magnetic Resonance Spectroscopy in Term Infants with Neonatal Encephalopathy. *Pediatr Res* 50, 692–700. <https://doi.org/10.1203/00006450-200112000-00011>
- Rumpel, H., Lim, W. E. H., Chang, H. M., Chan, L. L., Ho, G. L., Wong, M. C., & Tan, K. P. (2003). Is myo-inositol a measure of glial swelling after stroke? a magnetic resonance study. *Journal of Magnetic Resonance Imaging*, 17(1), 11–19. <https://doi.org/10.1002/JMRI.10233>
- Rundek, T., & Sacco, R. L. (2016). Prognosis after Stroke. *Stroke: Pathophysiology, Diagnosis, and Management*, 234-252.e10. <https://doi.org/10.1016/B978-0-323-29544-4.00016-5>
- Rusek, M., Pluta, R., Ułamek-Kozioł, M., & Czuczwar, S. J. (2019). Ketogenic diet in alzheimer's disease. In *International Journal of Molecular Sciences* (Vol. 20, Issue 16). MDPI AG. <https://doi.org/10.3390/ijms20163892>
- Saposnik, G., Guzik, A. K., Reeves, M., Ovbiagele, B., & Johnston, S. C. (2013). Stroke Prognostication using Age and NIH Stroke Scale: SPAN-100. *Neurology*, 80(1), 21. <https://doi.org/10.1212/WNL.0B013E31827B1ACE>
- Saunders, D. E. (2000). MR spectroscopy in stroke. In *British Medical Bulletin* (Vol. 56, Issue 2, pp. 334–345). Oxford University Press. <https://doi.org/10.1258/0007142001903256>
- D. (2019). Nutrition and Risk of Stroke. *Nutrients*, 11(3). doi.org/10.3390/NU11030647



- Soekirman. (2011). Taking the Indonesian nutrition history to leap into betterment of the future generation: development of the Indonesian Nutrition Guidelines. In *Asia Pac J Clin Nutr* (Vol. 20, Issue 3).
- Shaafi, S., Mahmoudi, J., Pashapour, A., Farhoudi, M., Sadigh-Eteghad, S., & Akbari, H. (2014). Ketogenic diet provides neuroprotective effects against ischemic stroke neuronal damages. In *Advanced Pharmaceutical Bulletin* (Vol. 4, Issue Suppl 2, pp. 479–481). Tabriz University of Medical Sciences. <https://doi.org/10.5681/apb.2014.071>
- Shaafi, S., Sharifi-Bonab, M., Ghaemian, N., Mokhtarkhani, M., & Akbari, H. (2019). Early Motor-Behavioral Outcome of Ischemic Stroke with Ketogenic Diet Preconditioning: Interventional Animal Study. *Journal of Stroke and Cerebrovascular Diseases*, 28(4), 1032–1039. <https://doi.org/10.1016/j.jstrokecerebrovasdis.2018.12.024>
- Sabbouh, T., & Torbey, M. T. (2018). Malnutrition in Stroke Patients: Risk Factors, Assessment, and Management. In *Neurocritical Care* (Vol. 29, Issue 3, pp. 374–384). Humana Press Inc. <https://doi.org/10.1007/s12028-017-0436-1>
- Tang, X., Wang, C., Xia, L., Zhu, W., Zhao, L., & Zhu, W. (2012). Volumetric MRI and 1H MRS study of hippocampus in unilateral MCAO patients: relationship between hippocampal secondary damage and cognitive disorder following stroke. *European journal of radiology*, 81(10), 2788–2793. <https://doi.org/10.1016/j.ejrad.2011.08.010>
- VanItallie, T. B., Nonas, C., Di Rocco, A., Boyar, K., Hyams, K., & Heymsfield, S. B. (2005). Treatment of Parkinson disease with diet-induced hyperketonemia: A feasibility study. *Neurology*, 64(4), 728–730. <https://doi.org/10.1212/01.WNL.0000152046.11390.45>
- Walecki, J., Barcikowska, M., Ćwikła, J. B., & Gabryelewicz, T. (2011). N-acetylaspartate, choline, myoinositol, glutamine and glutamate (glx) concentration changes in proton MR spectroscopy (1H MRS) in patients with mild cognitive impairment (MCI). *Medical Science Monitor: International Journal of Experimental and Clinical Research*, 17(12), MT105. doi.org/10.12659/MSM.882112
- Wang, X., Zuo, Y., Xu, Q., Meng, X., Chen, P., Li, H., & Wang, Y. (2022). Ketone bodies and adverse outcomes in patients with acute ischemic



stroke or TIA. *Atherosclerosis plus*, 48, 20–26. <https://doi.org/10.1016/j.athplu.2022.03.001>

Wang, Y., Wang, Y., Peng, G., Liang, W., Chen, J., Chen, K., Yang, X., Jiang, J., & Huang, B. (2022). Analysis of magnetic resonance spectroscopy characteristics in patients with type 2 diabetes complicated with stroke. *Frontiers in medicine*, 9, 1008941. <https://doi.org/10.3389/fmed.2022.1008941>

White, H., & Venkatesh, B. (2011). Clinical review: ketones and brain injury. *Critical care (London, England)*, 15(2), 219. <https://doi.org/10.1186/cc10020>

Wilson, D., Ambler, G., Lee, K. J., Lim, J. S., Shiozawa, M., Koga, M., Li, L., Lovelock, C., Chabriat, H., Hennerici, M., Wong, Y. K., Mak, H. K. F., Prats-Sánchez, L., Martínez-Domeño, A., Inamura, S., Yoshifuji, K., Arsava, E. M., Horstmann, S., Purrucker, J., ... Mitchell, J. (2019). Cerebral microbleeds and stroke risk after ischaemic stroke or transient ischaemic attack: a pooled analysis of individual patient data from cohort studies. *The Lancet. Neurology*, 18(7), 653. [https://doi.org/10.1016/S1474-4422\(19\)30197-8](https://doi.org/10.1016/S1474-4422(19)30197-8)

Yaghi, S., Herber, C., Boehme, A. K., Andrews, H., Willey, J. Z., Rostanski, S. K., Siket, M., Jayaraman, M. v., McTaggart, R. A., Furie, K. L., Marshall, R. S., Lazar, R. M., & Boden-Albala, B. (2017). The Association between Diffusion MRI-Defined Infarct Volume and NIHSS Score in Patients with Minor Acute Stroke. *Journal of Neuroimaging : Official Journal of the American Society of Neuroimaging*, 27(4), 388. <https://doi.org/10.1111/JON.12423>

Yamanie, N., Chalik Sjaaf, A., Felistia, Y., Harry Susanto, N., Diana, A., Lamuri, A., & Miftahussurur, M. (2023). High socioeconomic status is associated with stroke severity among stroke patients in the National Brain Centre Hospital, Jakarta, Indonesia. *Preventive Medicine Reports*, 32, 102170. <https://doi.org/10.1016/J.PMEDR.2023.102170>

Yoshimoto, T., Inoue, M., Yamagami, H., Fujita, K., Tanaka, K., Ando, D., Sonoda, K., Kamogawa, N., Koga, M., Ihara, M., & Toyoda, K. (2019). Use of non-Weighted Imaging-Alberta Stroke Program Early Computed Tomography Score (DWI-ASPECTS) and Ischemic Core Volume to Define the Malignant Profile in Acute Stroke. *Journal of the American Neurological Association*, 8(22). <https://doi.org/10.1161/JAHA.119.012558>



- You, S., Xu, J., Ou, Z., Zhong, C., Han, Q., Chen, J., Cao, Y., & Liu, C. F. (2021). Prognostic significance of urinary protein and urinary ketone bodies in acute ischemic stroke. *Nutrition, Metabolism and Cardiovascular Diseases*, 31(11), 3152–3160. <https://doi.org/10.1016/j.numecd.2021.07.010>
- Zhang, J., Lu, C., Wu, X., Nie, D., & Yu, H. (2021). Neuroplasticity of Acupuncture for Stroke: An Evidence-Based Review of MRI. *Neural Plasticity*, 2021. <https://doi.org/10.1155/2021/2662585>
- Zhao, Z., Lange, D. J., Voustantiounk, A., MacGrogan, D., Ho, L., Suh, J., Humala, N., Thiyagarajan, M., Wang, J., & Pasinetti, G. M. (2006). A ketogenic diet as a potential novel therapeutic intervention in amyotrophic lateral sclerosis. *BMC Neuroscience*, 7. <https://doi.org/10.1186/1471-2202-7-29>
- Zhong, C., Lu, Z., Che, B., Qian, S., Zheng, X., Wang, A., Bu, X., Zhang, J., Ju, Z., Xu, T., & Zhang, Y. (2021). Choline Pathway Nutrients and Metabolites and Cognitive Impairment After Acute Ischemic Stroke. *Stroke*, 52(3), 887–895. <https://doi.org/10.1161/STROKEAHA.120.031903>
- Zhu, H., & Barker, P. B. (2011). MR Spectroscopy and Spectroscopic Imaging of the Brain. *Methods in Molecular Biology* (Clifton, N.J.), 711, 203. https://doi.org/10.1007/978-1-61737-992-5_9



Lampiran 1 Izin Etik



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. Agus salim Bukhari, MMed, PhD, SpGK TELP. 081241850858, 0411 5780103, Fax : 0411-581431

REKOMENDASI PERSETUJUAN ETIK

Nomor : 130/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 20 Februari 2023

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

No Protokol	UH22110677	No Sponsor Protokol	
Peneliti Utama	dr. Nur Amelia Bachtiar, MPH, Sp.Rad	Sponsor	
Judul Peneliti	EVALUASI SKOR MODIFIKASI DWI-ASPECTS, KADAR N-ACETYL ASPARTATE, LAKTAT, DAN KETON DENGAN MENGGUNAKAN MRI DAN MR-SPECTROSCOPY TERHADAP LUARAN KLINIS PASIEN STROKE ISKEMIK AKUT		
No Versi Protokol	2	Tanggal Versi	16 Februari 2023
No Versi PSP	2	Tanggal Versi	16 Februari 2023
Tempat Penelitian	RSUP Dr. Wahidin Sudirohusodo dan Jejaring di Makassar		
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku	Frekuensi review lanjutan
		20 Februari 2023 sampai 20 Februari 2024	
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agussalim 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 Lapor 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



Lampiran 2 Grant Penelitian



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN
JALAN PERINTIS KEMERDEKAAN MAKASSAR 90245
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KEPUTUSAN DEKAN FAKULTAS KEDOKTERAN
UNIVERSITAS HASANUDDIN
NOMOR: 1570/UN4.6.2/KEP/2023

TENTANG

PENETAPAN NAMA-NAMA PESERTA PROPOSAL HIBAH PENELITIAN KOLABORATIF
FAKULTAS KEDOKTERAN UNIVERSITAS HASANUDDIN TAHUN 2023
DEKAN FAKULTAS KEDOKTERAN UNIVERSITAS HASANUDDIN

- Menimbang : a. Bahwa berdasarkan hasil seleksi yang dinyatakan lolos oleh Tim Tim Reviewer Hibah Penelitian Kolaboratif Fakultas Kedokteran Universitas Hasanuddin Tahun 2023, maka dipandang perlu menetapkan Nama-nama Peserta Proposal yang lolos pada kegiatan tersebut.
- b. Bahwa untuk memenuhi maksud butir (a) tersebut, perlu menerbitkan surat keputusannya.
- Mengingat : 1. Undang-undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional (Lembaran Negara Tahun 2003 Nomor 78);
2. Undang-undang Nomor 12 Tahun 2012 tentang Pendidikan Tinggi, (Lembaran Negara Tahun 2012 Nomor 158);
3. Peraturan Pemerintah Nomor 23 Tahun 1956 tentang Pendirian Universitas Hasanuddin (Lembaran Negara Tahun 1956 Nomor 39);
4. Peraturan Pemerintah Nomor 66 Tahun 2010 tentang Perubahan atas Peraturan Pemerintah Nomor 17 Tahun 2010 tentang Pengelolaan dan Penyelenggaraan Pendidikan (Lembaran Negara Tahun 2010 Nomor 112);
5. Peraturan Pemerintah Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan Tinggi dan Pengelolaan Perguruan Tinggi (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 16, Tambahan Lembaran Negara Nomor 5500);
6. Peraturan Pemerintah Nomor 82 Tahun 2014 tentang Penetapan Universitas Hasanuddin Sebagai Perguruan Tinggi Negeri Badan Hukum (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 301);
7. Peraturan Pemerintah Nomor 26 Tahun 2015 tentang Bentuk dan Mekanisme Pendanaan Perguruan Tinggi Negeri Badan Hukum (Lembaran Negara Republik Indonesia Tahun 2015 Nomor 110, Tambahan Lembaran Negara Nomor 5699);
8. Peraturan Pemerintah Nomor 53 Tahun 2015 tentang Statuta Universitas Hasanuddin (Lembaran Negara Republik Indonesia Tahun 2015 Nomor 168, Tambahan Lembaran Negara Nomor 5720);
9. Keputusan Majelis Wali Amanat Universitas Hasanuddin Nomor 005/UN4.0/KEP/2018 tanggal 26 Maret 2018 tentang Pemberhentian dan Pengangkatan Rektor Universitas Hasanuddin Periode 2018-2022.



10. Peraturan Rektor Universitas Hasanuddin Nomor : 8/UN4.1/2018 tanggal 8 Juli 2018 tentang Organisasi Dan Tata Kerja Pengelola Universitas Hasanuddin.
11. Peraturan Rektor Universitas Hasanuddin Nomor : 13/UN4.1/2018 tanggal 15 Oktober 2018 tentang Organisasi dan Tata Kerja Fakultas dan Sekolah Universitas Hasanuddin
12. Peraturan Rektor Universitas Hasanuddin Nomor : 13/UN4.1/2020 tentang Standar Biaya Universitas Hasanuddin Tahun Anggaran 2021

MEMUTUSKAN

- Menetapkan : KEPUTUSAN DEKAN FAKULTAS KEDOKTERAN UNIVERSITAS HASANUDDIN TENTANG PENETAPAN NAMA-NAMA PESERTA PROPOSAL HIBAH PENELITIAN KOLABORATIF FAKULTAS KEDOKTERAN UNIVERSITAS HASANUDDIN TAHUN 2023.
- KESATU : Mereka yang tersebut namanya pada lampiran surat keputusan ini ditetapkan sebagai nama-nama peserta Proposal Hibah Penelitian Kolaboratif Fakultas Kedokteran Universitas Hasanuddin Tahun 2023.
- KEDUA : Surat keputusan ini berlaku sejak tanggal ditetapkannya dengan ketentuan bahwa apabila dikemudian hari ternyata terdapat kekeliruan didalamnya, maka akan diadakan perbaikan sebagaimana mestinya.

Ditetapkan di : Makassar
Pada tanggal : 06 Maret 2023



Tembusan Yth:
1. Dekan FK UNHAS
2. Yang Bersangkutan
3. Arsip

Prof.Dr.dr. Haerani Rasyid, M.Kes.,Sp.GK.,Sp.PD-KGH., FINASIM,
NIP.196805301996032001



LAMPIRAN 1

KEPUTUSAN DEKAN FAKULTAS KEDOKTERAN
UNIVERSITAS HASANUDDIN
NOMOR 1570/UN4.6.2/KEP/2023
TANGGAL 06 MARET 2023
TENTANG PENETAPAN NAMA-NAMA PESERTA PROPOSAL HIBAH PENELITIAN KOLABORATIF FAKULTAS KEDOKTERAN UNIVERSITAS
HASANUDDIN TAHUN 2023

NO	KETUA	ANGGOTA	JUDUL
1	Dr dr Nita Mariana M.Kes,SpBA,Sub.Sp.D.A(K)	1. Prof.dr.Mochammad Hatta,PH.D. SpPK 2. dr Jusli Aras M.Kes.,SpA(K) 3. dr Ninny Meutia Pelupessy SpA(K) 4. Dr. dr Sumiati SpBA, SubSp.U.A(K) 5. dr Ahmadwirawan SpB, SpBA, SubSp.D.A(K) 6. dr Ferdian Eris Prianto	Hubungan Kadar Tumor Necrosis Factor Alpha (Tnf Alpha) Terhadap Kejadian Intusussepsi Pada Anak
2	Apt. Abdul Wahid Jamaluddin, M.Si	1. Drh. A. Magfira Satya Apada, M.Si 2. Dr. Drh. Dwi Kesuma Sari, APVet 3. Drh. Wa Ode Santa Monica, M.Si	Anthelmintic resistance test using multiple drugs on Ascaridia galli worms that infect the gastrointestinal tract of Layer hens chickens based on paralysis time
3	Prof.dr.Syafruddin, PhD	1. dr. Yenni Yusuf, M.InfectDis, PhD	Analisis status resistensi nyamuk Aedes Aegypti terhadap insektisida Pirethroid di Kota Makassar
4	Prof.Dr.dr. Haerani Rasyid, M.Kes.,Sp.GK.,Sp.PD-KGH., FINASIM	1. Dr dr Hasyim Kasim, SpPD, K-GH 2. dr. Mardiana, SpGK (K) 3. dr St. Rabiul Zatalia Ramadhan, SpPD, K-GH	Penilaian Protein Energy Wasting (PEW) Pada Pasien Hemodialisis: Studi potong lintang di RSP Universitas Hasanuddin, Makassar
5	Dr.dr. Warsinggih, M.kes,Sp.B Subs	1. Dr.dr. Fardah Akil, Sp.PD, K-GEH, FINA SIM 2. dr. Shandy Shanaya 3. dr. Amirullah Abdi	Membandingkan Kekuatan Jahitan Antara Teknik All Layer dan Seromuskular pada Anastomosis End to End Usus
6	DR. dr. Muhammad Sakti, Sp.OT(K)	1. dr. Leonard Christianto Singjie 2. dr. Dario Agustino Nelwan, Sp.Rad(K)	Efektivitas teknik Microfracture terhadap Penyembuhan Meniskus pada Pasien dengan Sobekan Meniskus
7	dr Achmad Fikry, Sp.PD	1. DR dr Irawaty Djaharuddin, Sp.P (K) 2. Dr dr Andi Alfian Zainuddin, MKM 3. dr Akhyar Albaar, SpPD, K-GH	Pengaruh Sesi Hemodialisis Tunggal Terhadap Fungsi Paru Pada Pasien Penyakit Ginjal Stadium Akhir Di Makassar

8	Drh. Fedri Rell	1. Drh. A. Magfira Satya Apada, M.Sc 2. Drh. Wa Ode Santa Monica, M.Si 3. dr. Firdaus Hamid, Ph.D. Sp.MK	Deteksi Canine Parvovirus Tipe 2 pada Kucing Suspek Feline Panlukupenia berbasis Polymerase Chain Reaction
9	dr. Liong Boy Kurniawan Sp.PK.,M.Kes	1. dr. Andi Ariyandi, Ph.D 2. dr. Aminuddin, M.Nut & Diet., Ph.D.,Sp.GK 3. dr. Muh. Iqbal Basri, M.Kes.,Sp.S(K) 4. Dr. Ichlas Nanang Afandi, S.Psi.,MA.	Analisis Kekuatan Handgrip, lingkaran otot lengan atas (upper arm muscle circumference) dan Manual Muscle Testing (MMT) Untuk Menilai Resistensi Insulin Pada Subyek Dewasa Non Diabetes dan Prediabetes di Indonesia
10	dr. Rini Rachmawarni Bachtiar Sp.PD (K)	1. Dr.dr. A. Alfian Zainuddin, MKM 2. dr. Rahmawati Minhajat, PhD, Sp.PD-KHOM	Analisis Geospasial Kasus Hepatitis B dan C di Sulawesi Selatan, Indonesia
11	Dr.dr. M. Amsyar Akil, Sp.THT-BKL(K)	1. dr. Uleng Bahrun Sp.PK(K), Ph.D	Pengaruh Terapi Proton Pump Inhibitor Terhadap Kadar Vitamin B12 Serum Dan Parameter Hematologi Dalam Darah Penderita Refluks Laringofaring.
12	Dr.dr.M.Harun Iskandar,SpP(K),SpPD,K-P	1. Dr.dr. Yuyun Widaningsih, M.Kes, SpPK(K)	Peranan C-Reactive Protein dan Procalcitonin sebagai prediktor outcome klinis pada pasien covid 19 berat
13	dr. Aristianti. SpBS	1. dr. Paulus Kurnia, M.Si. 2. dr. Haslinda Dahlan, SpPA 3. dr. Shelly Salmah, M.Kes	Potensi kombinasi ekstrak pegagan, kunyit dan lada hitam pada cedera kepala
14	dr. Nur Amelia Bachtiar, MPH, Sp.Rad	1. Prof. DR. dr. Suryani As ad, Sp.GK (K) 2. DR. dr. Mirna Muis, Sp. Rad (K) 3. DR. dr. Jumraini, Sp.S (K) 4. Prof. DR. dr. Muhammad Ilyas, Sp.Rad (K) 5. Dr. dr. Audrey Devisanty Wuysang, Sp.S. M.Si 6. Prof. Dr. dr. Bachtiar, Sp.Rad.(K) 7. dr. Gita Vita Soraya, Ph.D	"Evaluasi Skor Modifikasi Dwi-Aspects, Kadar n-Acetyl Aspartate, Laktat, dan Keton dengan menggunakan MRI dan MR-Spectroscopy Terhadap Luaran Klinis Pasien Stroke Iskemik Akut"
15	Dr. dr. H. Hasyim Kasim SpPD-KGH	1. Prof. Dr. dr Haerani Rasyid SpPD-KGH MKes SpGK 2. dr Nasrum Machmud SpPD-KGH 3. Dr dr Andi Alfian Zainuddin	Perbandingan Adekuasi Hemodialisis dengan Mesin dan Formula Daugirdas
16	dr. Khadijah Khairunnisa Hasyim, Sp.PD	1. Dr. dr. Hasyim Kasim, Sp.PD,K-GH 2. dr. Nasrum Machmud, Sp.PD, K-GH 3. dr. Firdaus Hamid, Ph.D, Sp.MK	Faktor -faktor yang Mempengaruhi Kontrol Tekanan Darah pada Pasien penyakit Ginjal Kronik yang menjalani Dialisis : Studi Cross Sectional



47	Dr.dr. Batari Todja Umar, Sp.M (K)	1. dr. Triani Hastuti Hatta, M.Kes, Sp.KK 2. dr. Shelly Salmah, M.Kes 3. dr. Adelina T. Poli, M.Kes, Sp.M 4. dr. Ririn Nislawati, M.Kes, Sp.M	Efek pemberian minyak jintan hitam terhadap perubahan histologi jaringan nervus optik dan morfologi jaringan darah pada tikus model neuropati optik toksik: studi eksperimental faktor pra- dan post- apoptosis (The effect of black seed oil administration on optic nerve and blood morphology changes in a toxic optic neuropathy rat model: an experimental study on pre- and post-apoptotic factors)
48	dr.Rizalinda Sjahril,MSc,Ph.D,SpMK(K)	1. Dr.dr.Ilhamjaya Patellongi, M.Kes 2. dr.Rahmawati	Modifikasi metode kultur urin pasien ibu hamil dengan keluhan ISK.
49	Dr. dr. Fardah Akil, Sp.PD, K-GEH, FINASIM	1. dr. Sri Asriyani, Sp.Rad(K),M.Med.Ed 2. dr. Nikmatia Latief, M.Kes, Sp. Rad(K) 3. Dr. dr. Nu'man AS Daud, Sp.PD, K-GEH, FINASIM 4. Prof. dr. Irawan Yusuf, Ph.D. 5. Dr.dr. Suryani, MPH 6. Dr. dr. Cosmas Rinaldi A. Lesmana, Sp.PD, KGEH, FACP, FAGG, FINASIM 7. DR.dr. Hery Djabat Purnomo, Sp.PD, K-GEH	Metabolic Associated Fatty Liver Disease (Mafld) : Hubungan Antara Derajat Fibrosis Hati Dengan Steatosis Hati Dan Komponen Sindrom Metabolik
50	Dr. Drh. Dwi Kesuma Sari, AP.Vet	1. Dr.dr. Ika Yustisia, M.Sc 2. Drh. A. Magfira Satya Apada, M.Sc 3. Drh. Rini Amriani, M.Biomed 4. Drh. Nurul Sulfi Andini 5. Drh. Nur Alif Bahmid	Profil Kimia Darah, Histopatologi Hepar, Jantung, dan Testis Tikus Wistar (Rattus norvegicus) yang Diinduksi Diet Tinggi Lemak terhadap Pemberian Ekstrak Etanol Daun Mangga (Mangifera indica L.)
51	Dr. Muhammad Tamar, M.Psi.	1. Umniyah Saleh, S.Psi.,M.Psi.Psikolog	Intervensi Meningkatkan Perilaku Pro-Lingkungan dengan Theory of Planned Behavior
52	Dr.dr.Rina Masadah, MPhil, Sp.PA(K), DFM	1. Prof.Dr.dr. Syahrul Rauf, Sp.OG(K) 2. dr.Rusdina Bte Ladju, Ph.D 3. Dr.dr.Berti Julian Nelwan, Sp.PA(K),M.Kes	Analisis Sekuens Genom Penderita Kanker Ovarium menuju Personalisasi Medis

53	Drh.Muhammad Fadhlullah Mursalim, M.Kes, Ph.D	1. Prof. Dr. Mochammad Hatta, Ph.D., SpMK (K)	Identifikasi Aeromonas SSP. pada Budi Daya Ikan Air Tawar Menggunakan Basis Data Peptida Khusus yang Dikonstruksi oleh Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS)
54	Prof. DR. Dr. Anis Irawan Anwar, Sp.KK(K), FINSDV, FAADV	1. Dr. dr. Andi Alfian Zainuddin, MKM 2. dr. Emma Novauli Hutabarat 3. dr. Ketut Alit Pinidha Savitri	Efektivitas Mikrobiome Topikal yang Mengandung Lactococcus Ferment Lysate Terhadap Kadar IL-8 dan IL-10 sebagai Pengobatan Akne Vulgaris
55	Dr. dr. Masyita Gaffar, Sp. T.H.T.B.K.L, Subsp.Oto.(K)	1. Dr. dr. Andi Alfian Zainuddin, M.KM	Analisis Perbedaan Gambaran Klimis dan Ekspresi Ki-67 Penderita Otitis Media Supuratif Kronis Kolesteatoma pada Dewasa dan Anak

Dekan. 6



Prof.Dr.dr. Haerani Rasyid, M.Kes.,Sp.GK.,Sp.PD-KGH., FINASIM
NIP 196805301996032001



Lampiran 3 Publikasi Accepted



Letter of Acceptance
14 May 2024

Dear: Michael Carrey¹, Andi Kurnia Bintang^{1,2,3*}, Muhammad Akbar^{1,2,3}, Abdul Muis^{1,2}, Gita Vita Soraya^{1,4,5}, Jumraini Tammasse^{1,2,3}, Mirna Muis^{3,6}, Nur Amelia Bachtiar^{3,6}

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*Corresponding: a.kurnia_b@yahoo.co.id

I am very excited to accept your paper entitled:

“A correlation study of Magnetic Resonance Spectroscopy (MRS) metabolite ratios with cognitive function in ischemic stroke patients.”

Your paper will be published in the issue of Vol. 14 Number 1, 2025.

<http://dx.doi.org/10.15562/bmj.v14i1.5391>

(Online Link: <http://balimedicaljournal.org/index.php/bmj/article/view/5391>).

And it usually takes 2 to 4 months for your journal to show up at Google Scholar, but if you need it fast, you may add it up manually using your google scholar account. The CrossRef and DOI number usually activate in 3 until 6 months.

Bali Medical Journal is indexed in Web of Sciences, Scopus, and many other indexing organization: <http://balimedicaljournal.org/index.php/bmj/pages/view/indexing>

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Please do not hesitate to contact us if you need anything. It has been a pleasure for us to proofread and edit your work, and we are looking forward to your colleagues and your other papers in the near future.

Agreed/Menyetujui by:

Menyetujui,
Bali Medical Journal

Prof. Dr. dr. Sri Maliawan, SpBS (K)
Editor in Chief

Menyetujui,
Bali Medical Journal

Prof. Dr. Ir. Ida Bagus Putra Manuaba, MPhil
Associate Editor



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Lampiran 4 Manuscript Under Review

Judul:

“Non Contrast MRI Sequence for Ischemic Stroke: A Concise Overview for Clinical Radiologist”

Jurnal:

Vascular Health and Risk Management – Dove publishing

Current Files

Sub ID: 474143
Editorial Team Contact: [Mrs Laurel McCreight](#)
Manuscript Title: Non-contrast MRI sequences for ischemic stroke: a concise overview for clinical radiologists
Journal: Vascular Health and Risk Management
|- [Aims and Scope](#)
Contact Person: Dr Bachtiar
Submitted On: 20 May 2024
Status: 2B - FIRST PEER REVIEWER ALLOCATED
Article type: Review
Number of Authors: 9

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Lampiran 5 Case Report Form

CASE REPORT FORM

EVALUASI SKOR MODIFIKASI DWI-ASPECTS, KADAR N-ACETYL ASPARTATE, LAKTAT, DAN KETON DENGAN MENGGUNAKAN MRI DAN MR-SPECTROSCOPY TERHADAP LUARAN KLINIS PADA PASIEN STROKE ISKEMIK AKUT

dr. Nur Amelia Bachtiar, Sp.Rad; dr. Michael Carrey; dr. Rowin

No. Partisipan : _ _ _ _ TTL & Umur :
 Nama : Alamat :
 ID pasien (RM) : Sex: M/F No. TLP :
 Tingkat Pendidikan Akhir : Pekerjaan :
 Tanggal Informed consent:
 Klinis Pasien :

Pemeriksaan Fisis:

- Tinggi (cm) / BB (kg) / BMI :
- Tekanan darah (mmHg) :
- Suhu :
- GCS :
- FKL :
- Nervi Craniales :
- Motorik :

Kekuatan	Ref Fisiologis	Ref Patologis	
-	+	+	+
- Sensorik :	:	:	:
- Otonom :	:	:	:
- Lainnya :	:	:	:

Parameter Klinis	Skor*
NIHSS awal (hari ke-.....)	
NIHSS akhir (hari ke-.....)	



Form

Riwayat Pasien:

1. Riwayat stroke sebelumnya : Ya/Tidak,
jika ada tipe stroke _____, tahun _____, berapa kali serangan ____
2. Penyakit jantung : Ya/Tidak,
Jika ada jenis penyakit jantung _____, sejak tahun _____
3. Hipertensi : Ya/Tidak,
Jika ada hipertensi, sejak tahun _____, riwayat obat rutin _____
4. Diabetes : Ya/Tidak,
Jika ada diabetes, sejak tahun _____, riwayat obat rutin _____
5. Gangguan memori : Ya/Tidak,
Jika ada gangguan memori, sejak tahun _____, jenis gangguan memori _____, gejala gangguan memori _____, riwayat obat rutin _____
6. Dislipidemia : Ya/Tidak,
Jika ada diabetes, sejak tahun _____, riwayat obat rutin _____
7. Kebiasaan merokok : Ya masih rutin/Ya sudah berhenti/Tidak pernah,
Jika ada merokok, sejak tahun _____, jenis rokok _____, jumlah rokok/hari _____ batang
8. Kebiasaan alkohol : Ya masih rutin/Ya sudah berhenti/Tidak pernah,
Jika ada minum alkohol, sejak tahun _____, jenis alkohol _____, jumlah alkohol/hari atau minggu _____ cc

Obat yang dikonsumsi* (rutin sebelum sakit) :

Obat yang dikonsumsi* (selama di rumah sakit) :

Apakah memenuhi kriteri inklusi dan tidak termasuk kriteria eksklusi*? Tidak / Ya
Onset kejadian stroke (pertama kali bergejala) : Hari Jam yang lalu

	Hari-1	Hari-2	Hari-3	Hari-4	Hari-5	Hari-6	Hari-7
Tanggal							
Konsumsi makanan							
Kadar keton urin							




catatan mengonsumsi diet ketogenik apabila terdapat konsumsi karbohidrat < 50

Hasil Evaluasi Pemeriksaan Laboratorium:

Parameter Laboratorium	Hasil
Hemoglobin (g/dL)	
Hematokrit (%)	
Leukosit (μ L)	
Trombosit (μ L)	
RDW-SD (fL)	
RDW-CV (%)	
PDW (fL)	
MPV (fL)	
BAS (%)	
EO (%)	
NEUT (%)	
MONO (%)	
LYMPH (%)	
LED (mm)	
Glukosa Sewaktu (mg/dL)	
Glukosa Puasa (mg/dL)	
HbA1c (%)	
Total Kolesterol (mg/dL)	
LDL (mg/dL)	
HDL (mg/dL)	
Trigliserida (mg/dL)	
Ureum (mg/dL)	
Kreatinin (mg/dL)	
Osmolaritas Saliva (mOsm)	



Hasil Evaluasi Pemeriksaan MRI:

Sequence MRI	Hasil
Tanggal Pemeriksaan	
T1WI (ada/tidak lesi)	
T2WI (ada/tidak lesi)	
FLAIR (ada/tidak lesi)	
DWI - Area hiperintens Volume stroke (cc)	
ADC - Area hipointens Volume stroke (cc)	
SWI - Transformasi Hemorrhagic (ada/tidak ada lesi)	
ASL - Nilai Perfusi (ml/100gm/menit)	aCBF =
	rCBF =
MRA / MRV - Lokasi obstruksi P. darah (arteri/vena)	
Lokasi Stroke - Lobus frontalis, temporalis, occipitalis, parietalis	
Patologi - Atrofi otak - Leukoaraiosis - White matter hyperintensity	
 Copy (2x1x1) Cr r	

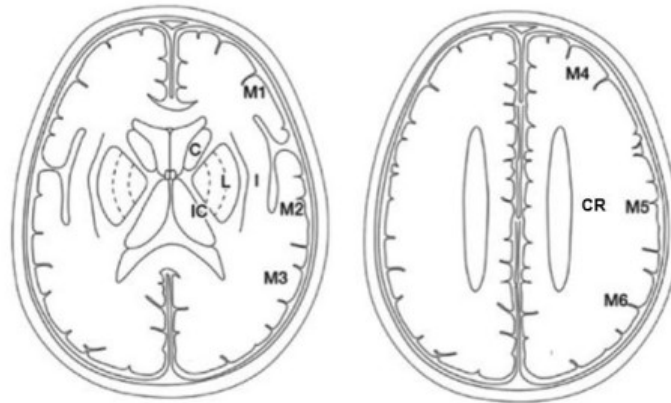
<ul style="list-style-type: none"> - BHB/Cr - Cho/Cr - mI/Cr - Glx (Glu + Gln)/Cr 	
Tan Collateral Grading System (0 – 3)	

Makassar,
Pemeriksa

(.....)



Skor Modified DWI-ASPECTS



Lokasi *	Hiperintensitas DWI	Skor**
M1	Ya/Tidak	
M2	Ya/Tidak	
M3	Ya/Tidak	
M4	Ya/Tidak	
M5	Ya/Tidak	
M6	Ya/Tidak	
C	Ya/Tidak	
I	Ya/Tidak	
L	Ya/Tidak	
IC	Ya/Tidak	
CR	Ya/Tidak	
Total Skor		

*C, nucleus kaudatus; I, insular ribbon; L, nucleus lenticularis; IC, kapsula interna; CR, Corona radiate; M1, korteks MCA anterior; M2, korteks MCA lateral; M3, korteks MCA posterior, M4, M5, dan M6 adalah teritori MCA bagian anterior tepat di atas ganglia basalis. **skor awal adalah 11, mi pengurangan 1 poin setiap kali ada area yang mengalami hiperintens pada DWI.



Skor National Institutes of Health Stroke Score (NIHSS)

Visit 1 dan Visit 7/ Hari terakhir rawat inap

Aktivitas		Nilai	
		Onset hari ke-....	Onset hari ke -
1.a Derajat Kesadaran	0= Sadar Penuh 1= Somnolen 2=Stupor 3=Koma		
1.b Menjawab pertanyaan	0= Dapat menjawab 2 pertanyaan dengan benar (mis. bulan apa, usia berapa) 1 = Hanya dapat menjawab 1 pertanyaan dengan benar/tidak dapat bicara karena terpasang pipa endotracheal/disartria 2 = Tidak bisa menjawab kedua pertanyaan dengan benar /afasia/stupor		
1.c Mengikuti Perintah	0 = Dapat melakukan 2 perintah dengan benar (mis. buka mata dan tutup mata) 1 = Hanya dapat mengikti 1 perintah dengan benar 2 = Tidak dapat melakukan kedua perintah dengan benar		
2. Gerakan mata konyugat horizontal	0 = Normal 1 = Gerakan abnormal hanya pada 1 mata 2 = Deviasi konyugat yang kuat atau paresis konyugat total pada kedua mata		
3. Lapang pandang pada tes konfrontasi	0 = Tidak ada gangguan 1 = Kuadranopia 2 = Hemianopia total 3 = Hemianopia bilateral /buta kortikal		
4. Parese wajah	0 = Normal 1 = Paresis ringan 2 = Paresis parsial 3 = Paresis total		
5. Motorik lengan kanan	0 = Tidak ada simpangan bila pasien disuruh mengangkat lengannya selama 10 detik 1 = Lengan menyimpang kebawah sebelum 10 detik		
6. Motorik lengan kiri	2 = Lengan terjatuh ke Kasur atau badan atau tidak dapat diluruskan secara penuh 3 = Tidak dapat melawan gravitasi		
7. Motorik Tungkai Kanan	4 = Tidak ada Gerakan X = Tidak dapat diperiksa		
	0 = Tidak ada ataksia 1 = Ataksia pada satu ekstremitas		



	2 = Ataksia pada dua atau lebih ekstremitas X = Tidak dapat diperiksa		
10. Sensorik	0 = Normal 1 = Defisit Parsial yaitu merasa tapi berkurang 2 = Defisit total yaitu jika pasien tidak merasa atau terdapat gangguan bilateral		
11. Bahasa terbaik	0 = Tidak ada afasia 1 = Afasia ringan – sedang 2 = Afasia berat X = Tidak dapat bicara (bisu/afasia global/koma)		
12. Disartria	0 = Artikulasi normal 1 = Disartria ringan – sedang 2 = Disartria berat X = Tidak dapat diperiksa		
13. Neglect / tidak ada atensi	0 = Tidak ada 1 = Parsial 2 = Total		
Nilai Total			

Makassar,
Pemeriksa,

(.....)



The Modified Rankin Scale (mRS)

Skala dari 0 hingga 6, mulai dari tanpa gejala hingga kematian		Skor Hari ke-....*	Skor Hari ke-...**	Skor Hari ke-...***
0	Tidak ada gejala			
1	Tidak ada kecacatan yang signifikan. Mampu melakukan semua aktivitas seperti biasa, meskipun ada beberapa gejala			
2	Cacat ringan. Mampu mengurus urusan sendiri tanpa bantuan, tetapi tidak mampu melakukan semua aktivitas sebelumnya			
3	Disabilitas sedang. Membutuhkan bantuan, tetapi dapat berjalan tanpa bantuan			
4	Disabilitas sedang. Tidak dapat memenuhi kebutuhan tubuh sendiri tanpa bantuan, dan tidak dapat berjalan tanpa bantuan			
5	Cacat parah. Membutuhkan perawatan dan perhatian yang konstan, terbaring di tempat tidur, mengompol			
6	Meninggal			

**Onset sejak gejala stroke muncul, pada hari pemeriksaan MRI dilakukan*

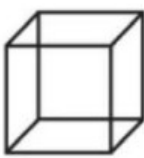
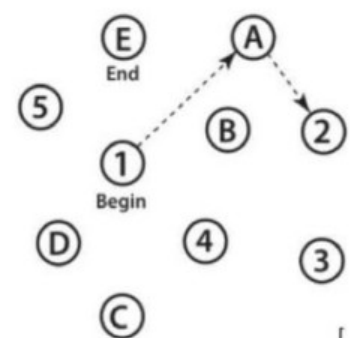
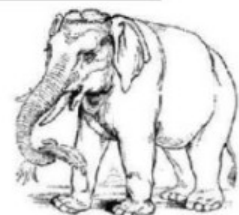
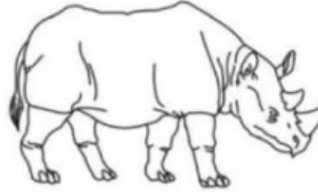
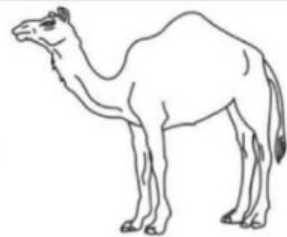
***Onset sejak gejala stroke muncul, pada hari terakhir rawat inap atau maksimal 7 hari setelah MRI dilakukan*

**** Onset sejak gejala stroke muncul, pada hari ke-30 setelah MRI dilakukan*



Montreal Cognitive Assessment-Versi Indonesia (MoCA-Ina)

Pemeriksaan pada saat pasien *discharge*/pulang dan pada *onset* 1 bulan

MONTREAL COGNITIVE ASSESSMENT-Versi Indonesia (MoCA-Ina)		NAMA:		Tgl Lahir:		POIN		
		Pendidikan:		Tgl Pemeriksaan:				
VISUOSPASIAL/EKSEKUTIF				salin gambar		Gambar jam (11 lebih 10 menit) (3 poin)		
		[]		[]			[] bentuk	
[]		[]		[]		[] angka		
[]		[]		[]		[] jarum jam		
[ ]		[ ]		[ ]		..../5		
PENAMAAN								
[ ]		[ ]		[ ]		..../3		
MEMORI		Baca kata berikut dan minta subjek mengulangnya. lakukan 2 kali, meski berhasil pada percobaan ke-1. lakukan recall setelah 5 menit		wajah	Sutera	Masjid	anggrek	merah
		ke-1						
		ke-2						
ATENSI		Baca daftar angka (1 angka/detik)		Subjek harus mengulangi dari awal [] 2 1 8 5 4		Subjek harus mengulangi dari belakang [] 7 4 2		..../2
		Baca daftar huruf. subjek harus mengetuk dengan tangannya setiap kali huruf A muncul. poin nol jika ≥ 2 kesalahan		[] FBACMNAAJKLBAFAKDEAAAJAM OFAAB				..../1
		Pengurangan berurutan dengan angka 7. Mulai dari 100		[] 93	[] 86	[] 79	[] 72	[] 65
				4,5 hasil benar: 3 poin, 2 atau 3 benar: 2 poin; 1 benar: 1 poin, 0 benar: 0 poin				..../3
BAHASA		Ulangi: Wat membantu saya menyapu lantai hari ini. []		Tikus bersembunyi di bawah dipan ketika kucing datang. [ ]				..../2
		Sebutkan sebanyak mungkin kata yang dimulai dengan huruf S		[] (N ≥ 11 kata)				..../1
ABSTRAKSI		Kemiripan antara, contoh pisang - jeruk = buah		[] kereta - sepeda	[] jam tangan - penggaris			..../2
DELAYED RECALL		Harus mengingat kata TANPA PETUNJUK		wajah	Sutera	Masjid	anggrek	merah
		petunjuk kategori						
Opsional		petunjuk pilihan ganda						poin untuk recall tanpa petunjuk
								..../5
ORIENTASI		[] Tanggal		[] Bulan	[] Tahun	[] Hari	[] Tempat	[] Kota
								..../6
				Normal ≥ 26 / 30		Total		..../30
						Tambahkan 1 poin jika pend. ≤12 tahun		

Dilakukan oleh.....

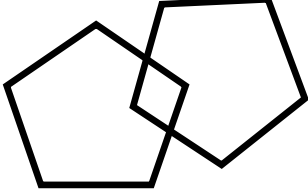


Mini Mental State Examination (MMSE)

Pemeriksaan pada saat pasien *discharge*/pulang dan pada *onset* 1 bulan

No.	Tes	Nilai Maks.	Nilai
I. ORIENTASI			
1.	Sekarang (tahun), (musim), (bulan), (tanggal), (hari) apa?	5	
2.	Kita berada di mana? (negara), (propinsi), (kota), (rumah sakit), (lantai/kamar)	5	
II. REGISTRASI			
3.	Sebutkan 3 buah nama benda (apel, meja, koin), tiap benda 1 detik, pasien disuruh mengulangi ketiga nama benda tadi. Nilai 1 untuk tiap nama benda yang benar. Ulangi sampai pasien dapat menyebutkan dengan benar dan catat jumlah pengulangan	3	
III. ATENSI DAN KALKULASI			
4.	Kurangi 100 dengan 7. Nilai 1 untuk tiap jawaban yang benar. Hentikan setelah 5 jawaban. Atau disuruh mengeja mundur kata "WAHYU"	5	
IV. MENINGAT KEMBALI (RECALL)			
5.	Pasien disuruh menyebut kembali 3 nama benda di atas	3	
V. BAHASA			
6.	Penamaan: Pasien disuruh menyebutkan nama benda yang ditunjukkan (pensil, buku)	2	
7.	Pengulangan: Pasien disuruh mengulang kata-kata "namun", "tanpa", "bila"	1	
8.	Perintah 3 tingkat: Pasien disuruh melakukan perintah: "Ambil kertas ini dengan tangan Anda, lipatlah menjadi dua, dan letakkan di lantai"	3	
9.	Membaca: Pasien disuruh membaca dan melakukan perintah "Pejamkanlah mata Anda"	1	
	Menulis: Pasien disuruh menulis dengan spontan	1	
INSTRUKSI			



11.	Menyalin gambar: Pasien disuruh menggambar bentuk di bawah ini 	1	
	Total Skor	30	

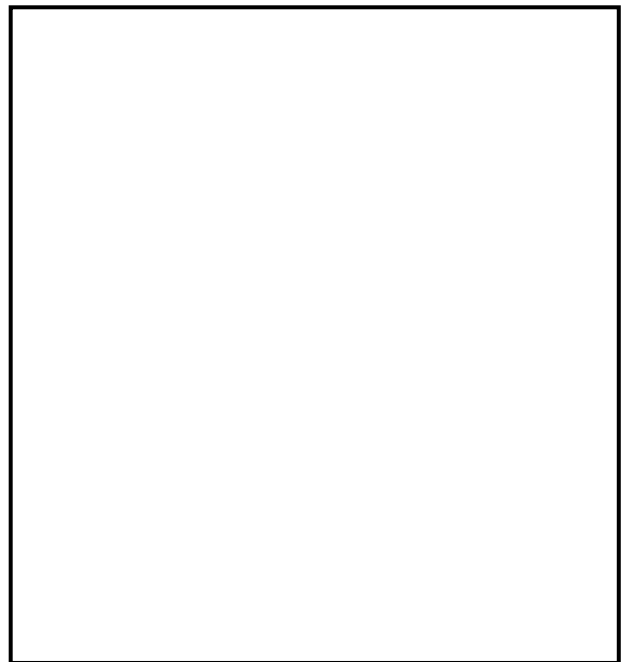
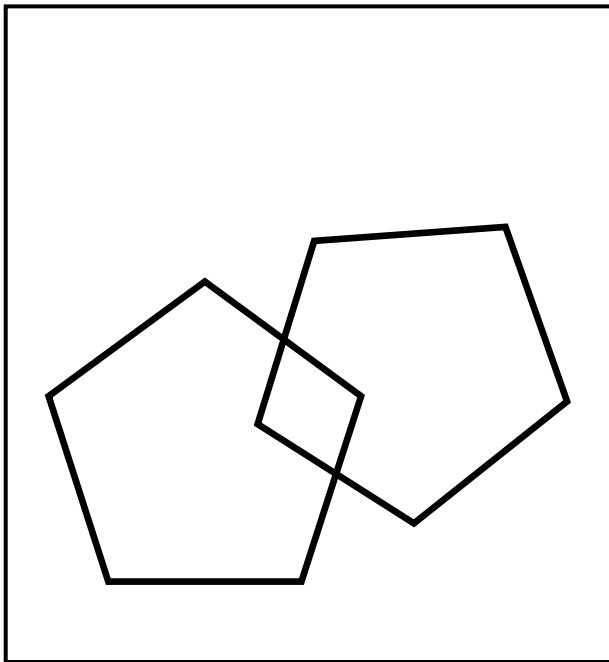
Makassar,
Pemeriksa,

(.....)



PEJAMKANLAH MATA ANDA

Kolom Gambar konstruksi:



Check-list Kriteria Inklusi dan Eksklusi Partisipan

No.	Kriteria	Ya/Tidak
Kriteria inklusi		
1.	Pasien dengan stroke iskemik fase akut (24 jam - 1 minggu)	Ya/Tidak
2.	Pasien memiliki tanda-tanda vital yang stabil dan dapat menjalani pemeriksaan MRI dengan durasi +/- 30 – 60 menit	Ya/Tidak
Kriteria eksklusi		
1.	Pasien dengan stroke iskemik fase hyperacute (0 – 24 jam), subakut (1-3 minggu) dan kronik (>3 minggu)	Ya/Tidak
2.	Pasien dengan stroke hemorragik atau trauma kepala	Ya/Tidak
3.	Pasien dengan riwayat tumor atau infeksi pada otak	Ya/Tidak
4.	Pasien yang tidak dapat dilakukan MRI (claustrophobia, terpasang implant dan protesa metal, dsb)	Ya/Tidak
5.	Pasien dengan serangan iskemik berulang	Ya/Tidak
6.	Pasien dengan gangguan pancreas berat (diabetes tergantung insulin)	Ya/Tidak
7.	Pasien anak (usia < 18 tahun) dan pasien lansia (usia > 75 tahun)	Ya/Tidak
8.	Pasien yang dilakukan terapi thrombolitik	Ya/Tidak
9.	Pasien dengan infark lacunar atau infark pada area sirkulasi posterior	Ya/Tidak
Kriteria Drop out		
1.	Pasien meninggal	
2.	Pasien pulang paksa	
3.	Pasien yang tidak dapat dilakukan perhitungan NIHSS pada hari terakhir rawat inap (tidak dapat dihubungi, atau tidak kooperatif)	



LEMBAR INFORMED CONSENT PERSETUJUAN PARTISIPAN

Saya yang bertanda tangan di bawah ini:

Nama (Inisial) :
No. Partisipan :
Umur :
Alamat :
No. Tlp :
Hubungan dengan partisipan : Saya sendiri/ Suami/ Istri/ Anak / Kerabat lainnya
.....

Setelah membaca dan mendengarkan penjelasan mengenai penelitian ini dan setelah mendapatkan jadwal dan pertanyaan terkait penelitian ini, maka saya memahami tujuan penelitian ini dan pertanyaan terkait penelitian ini yang nantinya akan bermanfaat bagi pelayanan kesehatan.

Saya sangat memahami bahwa keikutsertaan saya/keluarga saya menjadi partisipan pada penelitian ini akan sangat besar manfaatnya bagi pemahaman tentang peran kondisi ketosis terhadap penyakit stroke iskemik serta perkembangan ilmu pengetahuan di bidang radiologi khususnya pada pencitraan MRI pasien stroke iskemik.

Dengan menandatangani surat persetujuan ini, berarti saya/keluarga saya menyatakan bersedia untuk berpartisipasi dalam penelitian ini tanpa paksaan dan bersifat sukarela.

Makassar

Peneliti,

Partisipan/Wakil

(.....)

(.....)

