

DAFTAR PUSTAKA

- Adeghate, E., Singh, J., 2014. Structural changes in the myocardium during diabetes-induced cardiomyopathy. *Heart Fail. Rev.* 19, 15–23. <https://doi.org/10.1007/s10741-013-9388-5>
- American Diabetes Association, 2021. Classification and diagnosis of diabetes: Standards of medical care in diabetes-2021. *Diabetes Care* 44, S15–S33. <https://doi.org/10.2337/dc21-S002>
- Cardoso, C.R.L., Leite, N.C., Moram, C.B.M., Salles, G.F., 2018. Long-term visit-to-visit glycemic variability as predictor of micro- and macrovascular complications in patients with type 2 diabetes: The Rio de Janeiro Type 2 Diabetes Cohort Study. *Cardiovasc. Diabetol.* 17, 1–16. <https://doi.org/10.1186/s12933-018-0677-0>
- Dei Cas, A., Khan, S.S., Butler, J., Mentz, R.J., Bonow, R.O., Avogaro, A., Tschoepe, D., Doehner, W., Greene, S.J., Senni, M., Gheorghiade, M., Fonarow, G.C., 2015. Impact of diabetes on epidemiology, treatment, and outcomes of patients with heart failure. *JACC Hear. Fail.* 3, 136–145. <https://doi.org/10.1016/j.jchf.2014.08.004>
- Egashira, K., Sueta, D., Komorita, T., Yamamoto, E., Usuku, H., Tokitsu, T., Fujisue, K., Nishihara, T., Oike, F., Takae, M., Hanatani, S., Takashio, S., Ito, M., Yamanaga, K., Araki, S., Soejima, H., Kaikita, K., Matsushita, K., Tsujita, K., 2022. HFA-PEFF scores: prognostic value in heart failure with preserved left ventricular ejection fraction. *Korean J. Intern. Med.* 37, 96–108. <https://doi.org/10.3904/kjim.2021.272>
- Eyth, E., Naik, R., 2023. Hemoglobin A1C Pathophysiology. *Natl. Institutes Heal.* 1–5.
- Forsyth, F., Brimicombe, J., Cheriyan, J., Edwards, D., Hobbs, F.D.R., Jalaludeen, N., Mant, J., Pilling, M., Schiff, R., Taylor, C.J., Zaman, M.J., Deaton, C., Chakravorty, M., Maclachlan, S., Kane, E., Odone, J., Thorley, N., Borja-Boluda, S., Wellwood, I., Sowden, E., Blakeman, T., Chew-Graham, C., Hossain, M., Sharpley, J., Gordon, B., Taffe, J., Long, A., Aziz, A., Swayze, H., Rutter, H., Schramm, C., MacDonald, S., Papworth, H., Smith, J., Needs, C., Cronk, D., Newark, C., Blake, D., Brown, A., Basuita, A., Gayton, E., Glover, V., Fox, R., Crawshaw, J., Ashdown, H., A’Court, C., Ayerst, R., Hernandez-Diaz, B., Knox, K., Wooding, N., Wanninayake, S., Keast, C., Jones, A., Brown, K., Gaw, M., Thomas, N., Dixon, S., Angeleri-Rand, E., 2021. Diagnosis of patients with heart failure with preserved ejection fraction in primary care: cohort study. *ESC Hear. Fail.* 8, 4562–4571. <https://doi.org/10.1002/ehf2.13612>

- Galicia-Garcia, U., Benito-Vicente, A., Jebari, S., Larrea-Sebal, A., Siddiqi, H., Uribe, K.B., Ostolaza, H., Martín, C., 2020. Pathophysiology of type 2 diabetes mellitus. *Int. J. Mol. Sci.* 21, 1–34. <https://doi.org/10.3390/ijms21176275>
- Gorst, C., Kwok, C.S., Aslam, S., Buchan, I., Kontopantelis, E., Myint, P.K., Heatlie, G., Loke, Y., Rutter, M.K., Mamas, M.A., 2015. Long-term glycemic variability and risk of adverse outcomes: A systematic review and meta-analysis. *Diabetes Care* 38, 2354–2369. <https://doi.org/10.2337/dc15-1188>
- Hu, J., Hsu, H., Yuan, X., Lou, K., Hsue, C., Miller, J.D., Lu, J., Lee, Y., Lou, Q., 2021. HbA1c variability as an independent predictor of diabetes retinopathy in patients with type 2 diabetes. *J. Endocrinol. Invest.* 44, 1229–1236. <https://doi.org/10.1007/s40618-020-01410-6>
- Huang, L., Pan, Y., Zhou, K., Liu, H., Zhong, S., 2023. Correlation Between Glycemic Variability and Diabetic Complications: A Narrative Review. *Int. J. Gen. Med.* Volume 16, 3083–3094. <https://doi.org/10.2147/ijgm.s418520>
- International Diabetes Federation, 2021. *IDF Diabetes Atlas 10th Edition*.
- Iribarren, C., Karter, A.J., Go, A.S., Ferrara, A., Liu, J.Y., Sidney, S., Selby, J. V., 2001. Clinical Investigation and Reports Glycemic Control and Heart Failure Among Adult Patients With Diabetes 2668–2673.
- Jangam, S.R., Hayter, G., Dunn, T.C., 2018. Individuals with Type 1 and Type 2 Diabetes Mellitus Trade Increased Hyperglycemia for Decreased Hypoglycemia When Glycemic Variability is not Improved. *Diabetes Ther.* 9, 395–402. <https://doi.org/10.1007/s13300-017-0340-x>
- Jeppsson, J.-O., Kobold, U., Barr, J., Finke, A., Hoelzel, W., Hoshino, T., Miedema, K., Mosca, A., Mauri, P., Paroni, R., Thienpont, L., Umemoto, M., Weykamp, C., 2002. Approved IFCC reference method for the measurement of HbA1c in human blood. *Clin. Chem. Lab. Med.* 40, 78–89. <https://doi.org/10.1515/CCLM.2002.016>
- Jia, G., Whaley-Connell, A., Sowers, J.R., 2018. Diabetic cardiomyopathy: a hyperglycaemia- and insulin-resistance-induced heart disease. *Diabetologia* 61, 21–28. <https://doi.org/10.1007/s00125-017-4390-4>
- Kaur, G., Lakshmi, P.V.M., Rastogi, A., Bhansali, A., Jain, S., Teerawattananon, Y., Bano, H., Prinja, S., 2020. Diagnostic accuracy of tests for type 2 diabetes and prediabetes: A systematic review and meta-analysis. *PLoS One* 15, 42–59. <https://doi.org/10.1371/journal.pone.0242415>
- Khan, M., Hashim, M.J., King, J.K., Govender, R.D., Mustafa, H., Kaabi, J. Al, 2020. Epidemiology of Type 2 Diabetes – Global Burden of Disease and Forecasted Trends 10, 107–111.
- Kilpatrick, E.S., Rigby, A.S., Atkin, S.L., 2008. A1C Variability and the Risk of Microvascular Complications in Type 1 Diabetes 31, 0–4.

<https://doi.org/10.2337/dc08-0864>.

- Kosaraju, A., Goyal, A., Grigorova, Y., Makaryus, A.N., 2023. Left Ventricular Ejection Fraction. Treasure Island (FL).
- Krishna, S.V.S., Kota, S.K., Modi, K.D., 2013. Glycemic variability : Clinical implications 17. <https://doi.org/10.4103/2230-8210.113751>
- Lazar, S., Ionita, I., Reurean-Pintilei, D., Timar, B., 2024. How to Measure Glycemic Variability? A Literature Review. *Med.* 60, 1–10. <https://doi.org/10.3390/medicina60010061>
- Leung, M., Wong, V.W., Hudson, M., Leung, D.Y., 2016. Impact of Improved Glycemic Control on Cardiac Function in Type 2 Diabetes Mellitus. *Circ. Cardiovasc. Imaging* 9, 1–9. <https://doi.org/10.1161/CIRCIMAGING.115.003643>
- Li, S., Nemeth, I., Donnelly, L., Hapca, S., Zhou, K., Pearson, E.R., 2020. Visit-to-Visit HbA 1c Variability Is Associated With Cardiovascular Disease and Microvascular Complications in Patients With Newly Diagnosed Type 2 Diabetes 43, 426–432. <https://doi.org/10.2337/dc19-0823>
- Liang, M., Bian, B., Yang, Q., 2021. Characteristics and long-term prognosis of patients with reduced, mid-range, and preserved ejection fraction: A systemic review and meta-analysis.
- Lin, Y.T., Huang, W.L., Wu, H.P., Chang, M.P., Chen, C.C., 2021. Association of mean and variability of hba1c with heart failure in patients with type 2 diabetes. *J. Clin. Med.* 10, 1–10. <https://doi.org/10.3390/jcm10071401>
- Lund, L.H., Donal, E., Oger, E., Hage, C., Persson, H., Haugen-Löfman, I., Ennezat, P.V., Sportouch-Dukhan, C., Drouet, E., Daubert, J.C., Linde, C., 2014. Association between cardiovascular vs. Non-cardiovascular co-morbidities and outcomes in heart failure with preserved ejection fraction. *Eur. J. Heart Fail.* 16, 992–1001. <https://doi.org/10.1002/ejhf.137>
- Martinez, M., Santamarina, J., Pavesi, A., Musso, C., Umpierrez, G.E., 2021. Glycemic variability and cardiovascular disease in patients with type 2 diabetes. *BMJ Open Diabetes Res. Care* 9, 1–7. <https://doi.org/10.1136/bmjdr-2020-002032>
- Mcdonagh, T.A., Metra, M., Marianna, A., Gardner, R.S., Baumbach, A., Bohm, M., Burri, H., Butler, J., Celutkiene, J., Chioncel, O., Cleland, J.G., Coats, A.J., Crespo-Leiro, M.G., Farmakis, D., Gilard, M., Heymans, S., 2021. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 3599–3726. <https://doi.org/10.1093/eurheartj/ehab368>
- Nakamura, K., Miyoshi, T., Yoshida, Masashi, Akagi, S., Saito, Y., Ejiri, K., Matsuo, N., Ichikawa, K., Iwasaki, K., Naito, T., Namba, Y., Yoshida, Masatoki, Sugiyama, H., Ito, H., 2022. Pathophysiology and Treatment of Diabetic Cardiomyopathy and Heart Failure in Patients with Diabetes

- Mellitus. *Int. J. Mol. Sci.* 23. <https://doi.org/10.3390/ijms23073587>
- Omote, K., Verbrugge, F.H., Borlaug, B.A., 2022. Heart Failure with Preserved Ejection Fraction: Mechanisms and Treatment Strategies. *Annu. Rev. Med.* 73, 321–337. <https://doi.org/10.1146/annurev-med-042220-022745>
- Paulus, W.J., 2018. H2FPEF Score: At last, a properly validated diagnostic algorithm for heart failure with preserved ejection fraction. *Circulation* 138, 871–873. <https://doi.org/10.1161/CIRCULATIONAHA.118.035711>
- Paulus, W.J., Tschöpe, C., 2013. A Novel Paradigm for Heart Failure With Preserved Ejection Fraction. *J. Am. Coll. Cardiol.* <https://doi.org/10.1016/j.jacc.2013.02.092>
- PERKENI, 2021. Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia 2021. *Glob. Initiat. Asthma* 46.
- Petersmann, A., Müller-Wieland, D., Müller, U.A., Landgraf, R., Nauck, M., Freckmann, G., Heinemann, L., Schleicher, E., 2019. Definition, Classification and Diagnosis of Diabetes Mellitus. *Exp. Clin. Endocrinol. Diabetes* 127, S1–S7. <https://doi.org/10.1055/a-1018-9078>
- Pfeffer, M.A., Shah, A.M., Borlaug, B.A., 2016. HFpEF: In Perspective. *Physiol. Behav.* 176, 100–106. <https://doi.org/10.1161/CIRCRESAHA.119.313572.Heart>
- Ramesh, P., Yeo, J.L., Braddy, E.M., McCann, G.P., 2022. Role of inflammation in diabetic cardiomyopathy. *Ther. Adv. Endocrinol. Metab.* 13, 1–13. <https://doi.org/10.1177/https>
- Reddy, Y.N. V., Carter, R.E., Obokata, M., Redfield, M.M., Borlaug, B.A., 2018. A Simple, Evidence-Based Approach to Help Guide Diagnosis of Heart Failure with Preserved Ejection Fraction. *Circulation* 176, 100–106. <https://doi.org/10.1161/CIRCULATIONAHA.118.034646.A>
- Reddy, Y., Andersen, M.J., Obokata, M., Koepp, K.E., Kane, G.C., Melenovsky, V., Olson, T.P., Borlaug, B.A., 2016. Arterial Stiffening with Exercise in Patients with Heart Failure and Preserved Ejection Fraction. *Physiol. Behav.* 176, 139–148. <https://doi.org/10.1016/j.jacc.2017.05.029.Arterial>
- Roden, M., Shulman, G.I., 2019. The integrative biology of type 2 diabetes. *Nature* 576, 51–60. <https://doi.org/10.1038/s41586-019-1797-8>
- Said, H., Ludhwani, D., 2022. Heart Failure and Ejection Fraction.
- Sartore, G., Ragazzi, E., Caprino, R., Lapolla, A., 2022. Long-term HbA1c variability and macro-micro-vascular complications. <https://doi.org/10.1007/s00592-023-02037-8>
- Shah, A.D., Langenberg, C., Rapsomaniki, E., Denaxas, S., Pujades-Rodriguez, M., Gale, C.P., Deanfield, J., Smeeth, L., Timmis, A., Hemingway, H., 2015. Type 2 diabetes and incidence of cardiovascular diseases: A cohort study in 1·9

million people. *Lancet Diabetes Endocrinol.* 3, 105–113.
[https://doi.org/10.1016/S2213-8587\(14\)70219-0](https://doi.org/10.1016/S2213-8587(14)70219-0)

Shamshirgaran, S.M., Mamaghanian, A., Aliasgarzadeh, A., Aiminisani, N., Iranparvar-Alamdari, M., Ataie, J., 2017. Age differences in diabetes-related complications and glycemic control. *BMC Endocr. Disord.* 17, 1–7.
<https://doi.org/10.1186/s12902-017-0175-5>

Shin, S.H., Claggett, B., Pfeffer, M.A., Skali, H., Liu, J., Aguilar, D., Diaz, R., Dickstein, K., Gerstein, H.C., Køber, L. V., Lawson, F.C., Lewis, E.F., Maggioni, A.P., McMurray, J.J.V., Probstfield, J.L., Riddle, M.C., Tardif, J.C., Solomon, S.D., 2020. Hyperglycaemia, ejection fraction and the risk of heart failure or cardiovascular death in patients with type 2 diabetes and a recent acute coronary syndrome. *Eur. J. Heart Fail.* 22, 1133–1143.
<https://doi.org/10.1002/ejhf.1790>

Simon, K., Wittmann, I., 2019. Can blood glucose value really be referred to as a metabolic parameter? *Rev. Endocr. Metab. Disord.* 20, 151–160.
<https://doi.org/10.1007/s11154-019-09504-0>

Su, J., Zhao, L., Zhang, X., Cai, H., Huang, H., Xu, F., Chen, T., Wang, X., 2018. HbA1c variability and diabetic peripheral neuropathy in type 2 diabetic patients. *Cardiovasc. Diabetol.* 1–9. <https://doi.org/10.1186/s12933-018-0693-0>

Sun, B., Luo, Z., Zhou, J., 2021. Comprehensive elaboration of glycemic variability in diabetic macrovascular and microvascular complications. *Cardiovasc. Diabetol.* 20, 1–13. <https://doi.org/10.1186/s12933-020-01200-7>

Toh, M.P.H.S., Wu, C.X., Leong, H.S.S., 2011. Association of Younger Age With Poor Glycemic and Cholesterol Control in Asians With Type 2 Diabetes Mellitus in Singapore. *J. Endocrinol. Metab.* 1, 27–37.
<https://doi.org/10.4021/jem13e>

Triposkiadis, F., Giamouzis, G., Parissis, J., Starling, R.C., Boudoulas, H., Skoularigis, J., Butler, J., Filippatos, G., 2016. Reframing the association and significance of co-morbidities in heart failure. *Eur. J. Heart Fail.*

Tsao, C.W., Lyass, A., Enserro, D., Larson, M.G., Ho, J.E., Kizer, J.R., Gottdiener, J.S., Psaty, B.M., Vasan, R.S., 2018. Temporal Trends in the Incidence of and Mortality Associated with Heart Failure with Preserved and Reduced Ejection Fraction. *JACC Hear. Fail.* 176, 139–148.
<https://doi.org/10.1053/j.gastro.2016.08.014.CagY>

Umpierrez, G.E., Kovatchev, B.P., 2018. Glycemic Variability: How to Measure and Its Clinical Implication for Type 2 Diabetes. *Am J Med Sci* 176, 139–148.
<https://doi.org/10.1053/j.gastro.2016.08.014.CagY>

Van Tassell, B.W., Seropian, I.M., Toldo, S., Mezzaroma, E., Abbate, A., 2013. Interleukin-1 β induces a reversible cardiomyopathy in the mouse. *Inflamm.*

Res. 62, 637–640. <https://doi.org/10.1007/s00011-013-0625-0>

- Venkateshvaran, A., Faxen, U.L., Hage, C., Michaëlsson, E., Svedlund, S., Saraste, A., Beussink-Nelson, L., Fermer, M.L., Gan, L.M., Tromp, J., Lam, C.S.P., Shah, S.J., Lund, L.H., 2022. Association of epicardial adipose tissue with proteomics, coronary flow reserve, cardiac structure and function, and quality of life in heart failure with preserved ejection fraction: insights from the PROMIS-HFpEF study. *Eur. J. Heart Fail.* 24, 2251–2260. <https://doi.org/10.1002/ejhf.2709>
- Weykamp, C., 2013. HbA1c: A review of analytical and clinical aspects. *Ann. Lab. Med.* 33, 393–400. <https://doi.org/10.3343/alm.2013.33.6.393>
- Wilkinson, M.J., Zadourian, A., Taub, P.R., 2019. Heart Failure and Diabetes Mellitus: Defining the Problem and Exploring the Interrelationship. *Am. J. Cardiol.* 124, S3–S11. <https://doi.org/10.1016/j.amjcard.2019.10.024>
- Yan, Y., Kondo, N., Oniki, K., Watanabe, H., Imafuku, T., Sakamoto, Y., Shigaki, T., Maruyama, A., Nakazawa, H., Kaneko, T., Morita, A., Yoshida, A., Maeda, H., Maruyama, T., Jinnouchi, H., 2022. Predictive Ability of Visit-to-Visit Variability of HbA1c Measurements for the Development of Diabetic Kidney Disease : A Retrospective Longitudinal Observational Study 2022.
- Yokota, S., Tanaka, H., Mochizuki, Y., Soga, F., Yamashita, K., Tanaka, Y., Shono, A., Suzuki, M., Sumimoto, K., Mukai, J., Suto, M., Takada, H., Matsumoto, K., Hirota, Y., Ogawa, W., Hirata, K.I., 2019. Association of glycemic variability with left ventricular diastolic function in type 2 diabetes mellitus. *Cardiovasc. Diabetol.* 18, 1–8. <https://doi.org/10.1186/s12933-019-0971-5>
- Zoungas, S., Woodward, M., Li, Q., Cooper, M.E., Hamet, P., Harrap, S., Heller, S., Marre, M., Patel, A., Poulter, N., Williams, B., Chalmers, J., 2014. Impact of age, age at diagnosis and duration of diabetes on the risk of macrovascular and microvascular complications and death in type 2 diabetes. *Diabetologia* 57, 2465–2474. <https://doi.org/10.1007/s00125-014-3369-7>