Letter to the Editor

Researching Long-Term Outcomes Following Coronary Artery Bypass Grafting: A Closer Look

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To the Editor,

In the latest issue of the Journal of Tehran University Heart Center, Mehrabanian et al.[1] prospectively evaluate the predictive value of heart rate variability (HRV) in relation to mortality and major adverse cardiovascular events (MACE), following up 258 consecutive patients for 1–3 years after an elective coronary artery bypass grafting (CABG). While the research idea is meritorious, there remain some unaddressed aspects in the research subject, which are worth discussing.

To begin with, the isolated presentation of the mean left ventricular ejection fraction in the index study is far from holistic, as the authors do not account for preoperative diastolic dysfunction (DD) in their surgical population.[1] A systematic review and meta-analysis by Kaw et al.[2] identified DD as an independent predictor of mortality and MACE after cardiovascular surgery (OR:2.41 and OR:2.07; 95% CI:1.57 to 3.71 and 1.55 to 2.78, respectively; P<0.0001). Notably, the analysis included 12 studies with a total of 8,224 patients.[2]

Additionally, incorporating the New York Heart Association (NYHA) functional class could have improved clarity, given that an advanced NYHA III/IV status was included in a five-year MACE predictive model by Zhang et al.[1,3] The model showed promising results in post-CABG patients with diabetes mellitus.[3] In this context, nearly one-third of the patients in the study by Mehrabanian et al.[1] had diabetes.

Moreover, while the authors acknowledge the prognostic implications of HRV in myocardial infarction, they should have explicitly stated whether their study included patients with prior myocardial infarction.[1,4] This omission is particularly significant given that prior myocardial infarction has been independently associated with MACE following CABG, as demonstrated by Xia et al.[4] (OR:2.12; 95% CI:1.05 to 4.25; P=0.04).

Finally, it is essential to acknowledge the challenges posed by heterogeneity in the definitions of long-term outcomes like MACE, as highlighted in a systematic review by Bosco et al.[1,5] These variations can hinder the comparison, reproduction, and aggregation of valuable research findings.

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Ethical Approval

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Conflict of Interest

Nothing to declare, including no assistance of artificial intelligence.

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References

1. Mehrabanian MJ, Dehghani Firoozabadi M, Nooralishahi B, Zamani A, Kachoueian N. The Predictive Value of Heart Rate Variability for Long-Term Outcomes in Patients Undergoing Coronary Artery By-pass Grafting and ICU Referrals. J Teh Univ Heart Ctr. 2024;19:264-9.
2. Kaw R, Hernandez AV, Pasupuleti V, Deshpande A, Nagarajan V, Bueno H, et al. Effect of diastolic dysfunction on postoperative outcomes after cardiovascular surgery: A systematic review and meta-analysis. J Thorac Cardiovasc Surg. 2016;152(5):1142-53.
3. Zhang H, Chong H, Li Z, Li K, Zhang B, Xue Y, et al. Triglyceride-glucose index in the prediction of major adverse cardiovascular events in patients with type 2 diabetes mellitus after coronary artery bypass surgery: A retrospective cohort study. Front Endocrinol (Lausanne). 2022;13:1015747.
4. Xia T, Li B, Zhang W, Wang Z, Ye X, Zhou M, et al. Risk factors for major adverse cardiovascular events after coronary artery bypass grafting using radial artery grafts. Front Cardiovasc Med. 2023 Sep 27;10:1238161.
5. Bosco E, Hsueh L, McConeghy KW, Gravenstein S, Saade E. Major adverse cardiovascular event definitions used in observational analysis of administrative databases: a systematic review. BMC Med Res Methodol. 2021;21(1):241.

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