Letter by Echavarría-Pinto and Escaned Regarding Article, “Thermodilution-Derived Coronary Blood Flow Pattern Immediately After Coronary Intervention as a Predictor of Microcirculatory Damage and Midterm Clinical Outcomes in Patients With ST-Segment–Elevation Myocardial Infarction”

To the Editor:

We read with great interest the article by Fukunaga et al. entitled “Thermodilution-derived coronary blood flow pattern immediately after coronary intervention as a predictor of microcirculatory damage and midterm clinical outcomes in patients with ST-segment–elevation myocardial infarction.” We congratulate the authors for this interesting approach to assess myocardial damage during ST-segment–elevation myocardial infarction and would appreciate very much their views on several methodological aspects that seem to us of key importance for the correct interpretation of their results. First, the variability of thermodilution data refers to inter- and intra-observer classification of the obtained waveform patterns, not to variability between separate thermodilution injections. Experienced operators in this technique will acknowledge changes in waveform morphology intrinsically related to handmade injections. Thus, information on pattern reproducibility across several different measurements is key before clinical consideration of this index. Second, although the wide unimodal and bimodal patterns showed high mean transit time values (indicating lower myocardial flow), the mean transit time of these 2 patterns was not reported. This raises a major clinical question: were the worse MRI findings and the higher rate of major adverse cardiac events truly related to the bimodal pattern or, alternatively, to a lower myocardial flow reflected in longer mean transit time? Importantly, compared with the wide unimodal group, the bimodal pattern exhibited higher index of microcirculatory resistance values (65±41 and 76±38 U; P=NS). Although statistical significance was not reached, the authors reported Bonferroni-adjusted significance level for post hoc corrections, which is known to overcorrect for type I error. We would really appreciate if the authors provide both the adjusted and unadjusted P values stated in figures as NS, because statistical trends are of utmost importance for future study designs. In addition to the reply of the authors, we think that larger studies, addressing the above-mentioned issues, are required to accurately assess the potential value of the bimodal pattern over that of IMR estimation.

Disclosures

Dr Escaned has served as speaker in educational events organized by St Jude Medical and Volcano Corporation. The other author reports no conflicts.

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