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Clinical Outcomes with Beta-blockers after Myocardial Infarction: Finding the Right Patient and the Right Regimen

To the Editor:

We would like to commend Bangalore et al[1] for their well-executed meta-analysis evaluating clinical outcomes of beta-blockade in the setting of acute myocardial infarction. While the authors advocate that the current guidelines reconsider the strength of recommendations for beta-blockers post myocardial infarction, we feel that this conclusion may be premature, based on several limitations inherent to this type of analysis.

First, the lack of patient-level data reduces the generalizability of these findings. This is highlighted by the Clopidogrel and Metoprolol in Myocardial Infarction trial, in which significant differences in outcomes with beta-blocker therapy were noted based on the patient's underlying clinical status.[2] In fact, patients with acute myocardial infarction and certain clinical features (age above 70 years, Killip class III) had markedly worse outcomes with beta-blocker therapy, while those without such features who received metoprolol tended to do better. Furthermore, recent observational data suggest that myocardial infarction patients with high-risk features (Global Registry of Acute Coronary Events risk scores >121) derived benefit from beta-blockade, whereas low-risk patients did not.[3] As these studies illustrate that subtle differences in patient characteristics can clearly alter drug response and ultimately impact outcomes, the absence of these data from the meta-analysis reduces its applicability.

Second, despite the excellent sub-group analyses, which attempted to account for confounding both from the era effect and the routes of drug administration (intravenous vs oral), significant clinical heterogeneity persists in this paper. Across the studies in this analysis, many different beta-blockers were given in various dosages, which precludes identification of potentially harmful regimens. This notion is supported by recent registry data, which found significant differences in outcomes according to timing and route of beta-blocker administration in myocardial infarction patients.[4]

Finally, within the "reperfusion era" sub-group of the manuscript, varying treatment strategies introduce further confounding. Many of the included trials used antiquated fibrinolytic agents (ie, streptokinase, urokinase), and only 3 small studies extensively utilized percutaneous coronary intervention. Therefore, while the authors classify a "reperfusion era" in their analysis, we are not convinced that they have identified a patient population that adequately characterizes the management of contemporary acute myocardial infarction patients.

In conclusion, pending publication of additional data, we plan to continue to adhere to current guidelines and recommend beta-blocker therapy for clinically stable patients after acute myocardial infarction.

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