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Editorial

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Clinical Impact of Beta-blockers in the Revascularization Era

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▸ See the article "Clinical Impact of Beta Blockers in Patients with Myocardial Infarction from the Korean National Health Insurance Database" in volume 50 on page 499.

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Current guidelines recommend oral beta-blockers for secondary prevention during and after hospitalization in all patients post-myocardial infarction (MI) without contraindications.[1)2)] However, the effects of beta-blocker therapy on reducing infarct size, life-threatening arrhythmia and cardiac death were supported by the evidences in the pre-reperfusion era.[3)4)] Most studies in the revascularization era have reported inconsistent results with respect to the long-term effects of beta-blocker use post-MI in patients undergoing percutaneous coronary intervention (PCI). In a prospective registry study, beta-blocker therapy at discharge significantly improved 1-year survival in ST-elevation MI patients treated with primary PCI.[5)] Conversely, a recent meta-analysis including 16 observational studies showed no significant association between beta-blockers and all-cause mortality following MI.[6)] Moreover, the influence of time point or duration of beta-blocker prescription on future outcomes still remains unclear. Although early beta-blocker use was associated with a 29% reduced mortality risk in patients with acute MI, clinical benefits of beta-blocker therapy beyond 1 year have not yet been established.[7)8)] There was high clinical heterogeneity among studies with regard to the sample size, presentation types of MI, degree of cardiovascular risks, revascularization strategies, and combined medications. Previous analyses in majority focused on the effect of beta-blockers prescribed at discharge, not through the overall follow-up period.

Won et al. recently reported the clinical benefits of beta-blockers in a total of 81,752 acute MI patients who were treated by PCI and regularly prescribed with the medication possession ratio ≥80% during 2-year follow-up.[9)] Using the large cohort from the Korean national health insurance service claims database, this all-comer based analysis demonstrated that regular use of beta-blockers was independently associated with a reduction in the risk of composite adverse events including all-cause death and MI, which supported the relevance of the current guidelines for the recommendation of beta-blockers. With a high rate of drug-eluting stent implantation (96%), and frequent use of dual anti-platelets (91%), renin-angiotensin-aldosterone system blockers (78%) and statin (82%), the data reflecting the contemporary real-world practice indicated that longer-term use of beta-blocker may have survival benefits until at least 2 years, regardless of revascularization or medical treatment strategies.

Nonetheless, the routine use of long-term beta-blockers should be recommended with caution. With a retrospective design, this current study might contain potential selection or

confounding bias even after propensity score-matching. Because beta-blockers tend to be given in lower-risk patients with less severe symptoms, the cause and effect relationship is uncertain. In addition, there is lack of information about specific types and dose of beta-blockers, left ventricular ejection fraction, and time point of primary PCI in cases with ST-elevation MI. Adverse cardiac events were not centrally adjudicated, and clinical outcome data beyond 2 years were not provided. Thus, randomized-controlled trials are necessary to clarify more the clinical impact of long-term beta-blockers post-MI, especially in relatively low-risk patients undergoing revascularization.

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