EDITORIAL

Korean J Intern Med 2022;37:740-741
https://doi.org/10.3904/kjim.2022.200

Predictors of recurrent acute myocardial infarction despite initially successful percutaneous coronary intervention: back to the basic

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Recent pharmacological therapies and percutaneous coronary intervention (PCI) have substantially reduced mortality after myocardial infarction (MI). However, survivors of acute myocardial infarction (AMI) are at substantial risk of recurrent myocardial infarction (re-MI). In a large Swedish registry study of almost 100,000 patients with first-time MI, 18.3% experienced re-MI, stroke, or cardiovascular death during the first year after the index event [1]. In this real-world registry, about 20% of MI survivors experienced an event during the following 3 years [1]. Another prospective cohort study (the ST segment elevation myocardial infarction [STEMI] study) enrolled MI patients treated via primary PCI; the 3-year incidence of re-MI was 6.9% [2]. The risk factors for recurrent ischemic events are both clinical (age, diabetes mellitus, prior MI, stroke, unstable angina, heart failure, the extent of coronary artery dissection, and the use of revascularization to treat the index event) and biochemical (the levels of high-sensitivity troponins, C-reactive protein, N-terminal pro-B-type natriuretic peptide, and growth differentiation factor-15) [3-6].

In this issue of the *Korean Journal of Internal Medicine*, Lee et al. [6] report a re-MI rate of 3.6% in patients for whom the initial AMI had been successfully treated via PCI; factors significantly predictive of re-AMI were diabetes mellitus, renal dysfunction, atypical chest pain, and multi-vessel disease [7]. After exclusion of prior MI at the time of the index event, 10,759 patients who underwent successful PCI (only) were clinically followed-up in terms of re-MI by the Korea Acute Myocardial Infarction Registry (KAMIR)-National Institute of Health (NIH). The re-MI incidence was lower than in previous trials. Re-MI events developed early (< 30 days) in 19.7% of patients, later (< 180 days) in 21.7%, and very late (180 to 1,080 days) in 59.3%. The total 6-month mortality rate was 14.1%. Thus, re-MI is a life-threatening condition and is associated with poor prognosis despite previous successful PCI.

What is the major risk factor for the development of re-MI? Lee et al. [6] did not explore laboratory markers such as the lipid profile, the appropriateness of clinical control of diabetes and hypertension, or lesional characteristics (the precise re-MI location or stent details [type, number, or length]) because the data were limited. One re-MI trial enrolling patients with similar clinical characteristics and risk factors indicated that inappropriate guideline-directed medical treatment (GDMT) may

Received : June 2, 2022
Accepted : June 9, 2022

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pISSN 1226-3303
eISSN 2005-6648
http://www.kjim.org

play a role in re-MI development [8]. A recent, prospective observational study found that re-MI of a non-culprit vessel lesion was twice as re-MI in a culprit vessel. Thus, risk factor management (including GDMT) is important.

Lee et al. [6] found that re-MI was significantly associated with diabetes mellitus, renal dysfunction, atypical chest pain, and multi-vessel disease; of these, all except chest pain are well known predictors of re-MI [9]. Notably, atypical chest pain was a statistically significant predictor of re-MI (odds ratio, 1.495; 95% confidence interval, 1.12.5 to 1.987; p = 0.006). Such pain is much more common in older and fragile patients, and those with multiple comorbidities [10,11].

Although the cited study suggests that the independent predictors of re-AMI after successful PCI of index MI include diabetes, renal dysfunction, atypical chest pain, and multi-vessel disease, these risk factors are closely connected. Therefore, risk factor management (including GDMT) is important to reduce mortality in patients at high risk, even though PCI successfully treated the index MI.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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