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EDITORIAL COMMENT

# Diabetes Mellitus With Coronary Artery Disease

## Identifying Subgroups in Need of Additional Monitoring*

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Diabetes mellitus (DM) is one of the most important risk factors for development and aggravation of cardiovascular disease, particularly coronary artery disease. DM is present in almost one-third of acute coronary syndrome patients, and those with DM tend to present with more complex coronary lesions.[1] Furthermore, coronary artery disease in DM patients is associated with worse clinical outcomes. Not only is mortality reported to be higher in patients with DM than their non-DM counterparts, but repeat revascularization, stroke, and myocardial infarction (MI) are also more common during follow-up.[2] Clinicians seek to optimally manage patients' hyperglycemia to reduce these risks.

In this issue of *JACC: Asia*, Yamaji et al[3] use data from 3 large cohorts of patients who underwent coronary revascularization to identify the subgroups most negatively affected by the presence of DM in terms of clinical outcomes. The primary outcome measure was a composite of all-cause death, MI, and stroke, and secondary outcomes included all-cause death, cardiovascular death, noncardiovascular death, MI, stroke, target vessel revascularization, any coronary revascularization, and heart failure hospitalization. In addition to comparing DM and non-DM patients, 4 different modifiers were analyzed for significant interactions with the presence of DM: age (divided into <64 years, 64-73 years, and >73 years), sex, revascularization method, and initial presentation with MI vs non-MI. Although DM patients showed a higher incidence of all primary and secondary outcome measures, as expected, a few noteworthy findings were identified on statistical analyses.

First, there was a significant interaction between the relative risk of DM and age for the composite outcome of death, MI, and stroke, and this interaction was not identified for any other modifiers of the primary outcome. The increased primary outcome risk associated with DM was significantly greater in younger patients than among older patients. Second, significant interactions of relative risk of DM for target vessel and any revascularization were only seen for sex and mode of revascularization. Interestingly, the risk of target vessel and any revascularization after coronary bypass surgery was not significantly increased in the DM group compared with the non-DM group. Finally, whether patients presented with acute MI did not significantly change the relative risk of DM, indicating that there was no significant interaction between the risk of DM and initial presentation.

As DM was associated with worse primary outcome and worse secondary outcome measures in almost every subgroup, optimal glucose control should again be emphasized in terms of prognosis for patients with coronary artery disease. This study further implies that younger patients are more negatively affected by the presence of DM. The reason for this may be that because old age is another cardiovascular risk factor, older patients already have established risk for worse outcomes, and the impact of DM is relatively smaller. This could be further interpreted as a need for more watchful observation among younger patients with DM.

These results are supported by a large population—over 30,000 subjects—and extensive statistical

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analysis. The 3 cohorts analyzed by this study span all eras of stents, from bare-metal to contemporary drug-eluting stents, making the results generalizable to most stent types. However, as the data span over 10 years, various strategies both for DM and coronary artery disease may have been used, and thus direct extrapolation of the results to present clinical practice might be limited.

DM is one of the most common risk factors for acute coronary syndrome encountered in practice, and the importance of DM control in coronary artery disease prognosis among patients with DM cannot be overemphasized. Of course, any DM patient would benefit from more careful observation and management according to glycemic status, but these findings could help us identify patient subgroups that would benefit from additional monitoring of clinical course to improve outcomes. A further prospective study would help us to further understand the exact mechanisms behind the question posed here.

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