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What is the Optimal Antiplatelet Therapy in Type 2 Diabetes Mellitus Patients with Small Diameter Stents?

LETTER TO THE EDITOR

To the Editor,

The article titled "Comparison of 1-Year Clinical Outcomes between Ticagrelor Versus Clopidogrel in Type 2 Diabetes Patients After Implantation of Small Diameter Stents" by Algazzar et al[1] published in The Anatolian Journal of Cardiology was read with great interest. The study provides valuable insights into drug options for patients implanted with small-diameter stents, contributing significantly to the existing literature on the subject. Nonetheless, while the findings are compelling, several aspects warrant further discussion and critical evaluation.

One of the major strengths of the study is its focus on the underexplored subgroup of patients with type 2 diabetes mellitus (DM) who have small-diameter stents. These findings provide clinically valuable guidance for antiplatelet therapy decisions, particularly in light of the risks of restenosis and thrombotic events. The prospective methodology used in the study is particularly commendable. Propensity score matching enhances the validity of the comparison analysis by reducing confounding factors and increasing confidence in the results. The incorporation of both ischemic endpoints (such as cardiac death, myocardial infarction (MI), stroke, and target vessel revascularization) and bleeding endpoints [as defined by Bleeding Academic Research Consortium (BARC) criteria] enables a comprehensive evaluation of therapy effectiveness and safety. Notably, distinguishing outcomes in patients with chronic kidney disease (CKD) adds an important layer of clinical applicability, considering the established cardiovascular risks in this subgroup.

The publication of the PLATelet inhibition and patient Outcomes (PLATO) study in 2009 had significant implications for treatment approaches, indicating that in patients with acute coronary syndrome treated with ticagrelor, the mortality rate from vascular causes, including MI and stroke, was markedly lower compared to clopidogrel. However, the subgroup analysis of the study did not specifically explore the association between stent diameter and medications.[2]

In a post-hoc analysis of the PLATO study, a group of patients with type 2 DM and CKD was assessed both collectively and individually.[3] Despite a heightened bleeding risk associated with ticagrelor compared to clopidogrel, the ischemic advantage was much greater for ticagrelor in both populations. This highlights the elevated platelet reactivity often seen in patients with type 2 DM, which can diminish the effectiveness of antiplatelet medications. Since clopidogrel is a prodrug metabolized by the CYP2C19 enzyme, its efficacy might be reduced in diabetic patients, leading to inadequate P2Y12 inhibition. In contrast, ticagrelor is administered as an active pharmaceutical agent metabolized by the CYP3A4 enzyme, potentially making it more effective in diabetic individuals. Although the authors referenced the PLATO study, a deeper examination of pharmacogenomics would be beneficial to compare these current results with earlier landmark studies. The authors concluded there was no significant difference in ischemia risk between the ticagrelor and clopidogrel groups, supporting this with prior studies that noted similar outcomes, particularly within Asian patient groups. However,

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similar disparities were not consistently observed in comprehensive studies conducted in Western populations, suggesting the need for further clarity.[4] If racial differences are to be emphasized, they should be grounded in biopharmacological principles and backed by thorough race-based research.

The study notes that patients were followed through outpatient clinic visits or telephone contact at baseline and at 3, 6, 9, and 12 months. However, the authors did not specify the proportion of patients tracked via telephone or acknowledge this as a limitation. The inability to verify reports from patients contacted by telephone raises the possibility of obtaining erroneous or incomplete information, which could undermine the credibility of the study's findings. Additionally, the authors excluded patients aged 70 and above from the study without discussing how this exclusion might impact the outcomes, nor did they mention it among the study's limitations. While most studies indicate that ticagrelor can lead to more bleeding than clopidogrel in older populations, the variability in efficacy in preventing ischemic events between these 2 treatments calls for further exploration.[5,6]

In conclusion, while the current study provides valuable contributions for patients with small-diameter stents, the results necessitate further discourse and validation through larger studies.

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