

## Letter to the Editor



# Potent P2Y<sub>12</sub> Receptor Inhibition in Korean Patients with Acute Myocardial Infarction

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► See the article “Temporal Variability of Platelet Reactivity in Patients Treated with Clopidogrel or Ticagrelor” in volume 49 on page 1052.

To the Editor:

We read with great interest the paper by Yun et al.<sup>1)</sup> in a recent issue of the *Korean Circulation Journal*. In their work, the authors highlight that ticagrelor treatment showed less temporal variability of platelet reactivity over time in acute coronary syndrome (ACS) patients who underwent percutaneous coronary intervention (PCI) compared to clopidogrel treatment, with a reduced frequency of high-platelet reactivity. However, their work also demonstrated that patients in the ticagrelor group showed a significantly higher incidence of low-platelet reactivity, associated with an increased risk of bleeding, in comparison to the clopidogrel group, at every time point.

In patients with acute myocardial infarction (AMI) who undergo PCI, the use of potent P2Y<sub>12</sub> inhibitors, including ticagrelor and prasugrel, is recommended in the current guidelines.<sup>2)</sup> Interestingly, the first head-to-head randomized trial of ticagrelor and prasugrel in ACS patients recently reported, demonstrating a benefit of prasugrel in reducing ischemic events without increasing bleeding risk.<sup>3)</sup> However, it is important to acknowledge that standard dose ticagrelor (90 mg twice a day) and prasugrel (10 mg/day) have not demonstrated a reduction in the incidence of ischemic events but result in a significant increase in bleeding complications in Korean patients with AMI undergoing PCI when compared with clopidogrel (75 mg/day).<sup>4)</sup> This finding could be explained by the vulnerability of bleeding in East Asian patients, which is referred to as “East Asian Paradox”.<sup>5)</sup>

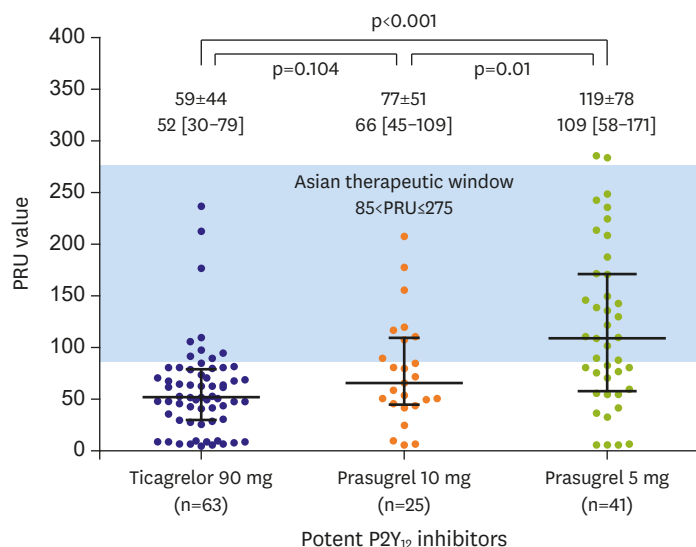
From January 2017 to August 2019, we collected single-center data on platelet reactivity for potent P2Y<sub>12</sub> inhibitors measured by the VerifyNow P2Y<sub>12</sub> (Accumentrics, Inc., San Diego, CA, USA) assay in patients with AMI who underwent PCI with stent implantation. As shown in **Figure 1**, the standard-dose potent P2Y<sub>12</sub> inhibitor groups had significantly lower platelet reactivity, expressed as P2Y<sub>12</sub> reaction unit (PRU), compared with that of the 5 mg prasugrel group. Moreover, the 5 mg prasugrel group had the highest proportion of matching the Asian therapeutic window (85<PRU≤275), followed by the 10 mg prasugrel and ticagrelor groups (53.7% vs. 32.0% vs. 14.3%, respectively, p<0.001).

**Conflict of Interest**

The authors have no financial conflicts of interest.

**Author Contributions**

Conceptualization: Kim Y; Data curation: Kim Y; Formal analysis: Kim Y; Funding acquisition: Kim Y; Methodology: Kim Y; Supervision: Johnson TW, Jeong MH; Validation: Johnson TW; Writing - original draft: Kim Y; Writing - review & editing: Johnson TW, Jeong MH.



**Figure 1.** Result of platelet reactivity assessed by the VerifyNow P2Y<sub>12</sub> assay from a retrospective analysis of single-center data of Korean patients with acute myocardial infarction. PRU values are presented as mean±standard deviation and median (interquartile range). PRU = P2Y<sub>12</sub> reaction unit.

It is time to recognize the unique characteristics of East Asian patients regarding bleeding tendency and conduct a dedicated study evaluating optimal dose of potent P2Y<sub>12</sub> inhibitors to achieve clinical benefits in East Asian patients with ACS including AMI.

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