Antiplatelet Therapy for Secondary Prevention After Acute Myocardial Infarction

Ilaria Cavallari, MD, Marc P. Bonaca, MD, MPH*

KEYWORDS

• Antiplatelet therapy • Myocardial infarction • Secondary prevention

KEY POINTS

- Patients with prior myocardial infarction (MI) are at heightened risk for recurrent ischemic complications over the long term.
- Prolonged intensive antiplatelet therapy reduces cardiovascular and all-cause death in patients with history of MI at the cost of an increase in nonfatal bleeding events.
- Risk scores are useful tools to identify patients who would derive a net benefit from long-term intensive antiplatelet therapy.

Antiplatelet therapy represents the cornerstone of short- and long-term prevention of atherothrombosis. In the setting of acute coronary syndrome (ACS), especially in patients with myocardial infarction (MI), randomized studies have shown a reduction in ischemic risk with dual antiplatelet therapy (DAPT) with aspirin and the $P2Y_{12}$ receptor inhibitor clopidogrel versus aspirin alone for a year after the acute event. Subsequent studies have shown even greater benefit with the more potent agents, prasugrel and ticagrelor, as compared with clopidogrel.[1–4] As a result, practice guidelines in the United States and Europe currently recommend treatment with a $P2Y_{12}$ inhibitor, in addition to aspirin, for up to 1 year after MI, regardless of medical or invasive management[5–7] with a preference for more potent agents where appropriate (Fig. 1). However, patients who suffer an MI remain at heightened risk for ischemic complications beyond 1 year[8–10] with 1 in 5 subjects experiencing an event during a mean follow-up of 2.5 years[10] (Fig. 2). Recent trials have demonstrated that extension of intensive long-term antiplatelet therapy as long-term secondary prevention reduces this ischemic risk and increased bleeding.[11–13]

In light of available data, a recent consensus document by the American College of Cardiology/American Heart Association assigned a class IIb recommendation for continuation of DAPT beyond 12 months; this strategy may be considered for patients at higher ischemic risk with lower bleeding risk (see Fig. 1).[7] Since these guidelines have been published, emerging data have begun to characterize key subgroups that derive robust absolute benefit from intensive strategies. In addition, risk scores have attempted to integrate markers of ischemic and bleeding risk to improve patient selection.

The aim of this review is to describe the residual risk of patients with prior MI, summarize

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TIMI Study Group, Division of Cardiovascular Medicine, Brigham and Women's Hospital, Harvard Medical School, 350 Longwood Avenue, Boston, MA 02115, USA

* Corresponding author. TIMI Study Group, 350 Longwood Avenue, 1st Floor Offices, Boston, MA 02115.
E-mail address: mbonaca@partners.org

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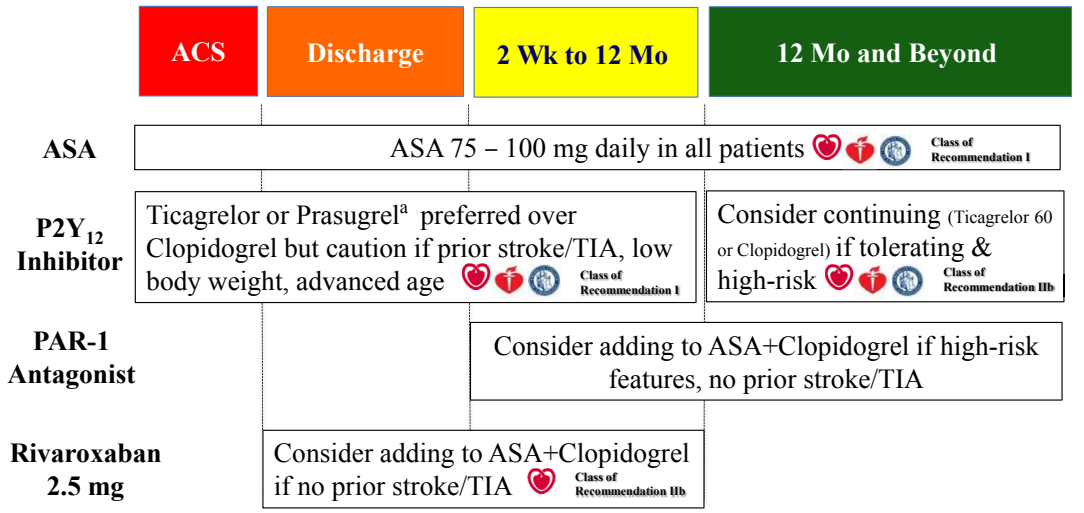

Fig. 1. Algorithm for the use of antithrombotic therapy in patients with ACS. [a] Prasugrel only for patients treated with PCI. ASA, aspirin.

current evidence on prolonged intensive antiplatelet therapy for the secondary prevention of recurrent ischemic events, and introduce the concept of tailored duration of intensive antiplatelet therapy.

RESIDUAL RISK AFTER MYOCARDIAL INFARCTION

Several observational studies have characterized long-term ischemic risk in patients with prior atherothrombosis (see Fig. 2). An analysis of 64,977 stable outpatients enrolled in the REACH (REduction of Atherothrombosis for Continued Health) registry evaluated the risk of cardiovascular (CV) death, MI, and stroke based on a clinical history of either CV risk factors only, known atherosclerosis but no prior ischemic event, or a prior ischemic event.[8] Patients with a prior ischemic event had the highest risk of CV death, MI, or stroke at 4 years (18.3%) compared with patients with stable atherosclerosis (12.2%) or risk factors only (9.1%). This observation appears biologically plausible; those with prior spontaneous MI, mediated by plaque rupture, may be at greater risk for future plaque rupture events than those without prior MI. Multiple factors have been hypothesized to explain this risk, including a long-term heightened inflammatory state, persisting platelet activation, and higher vulnerable plaque burden

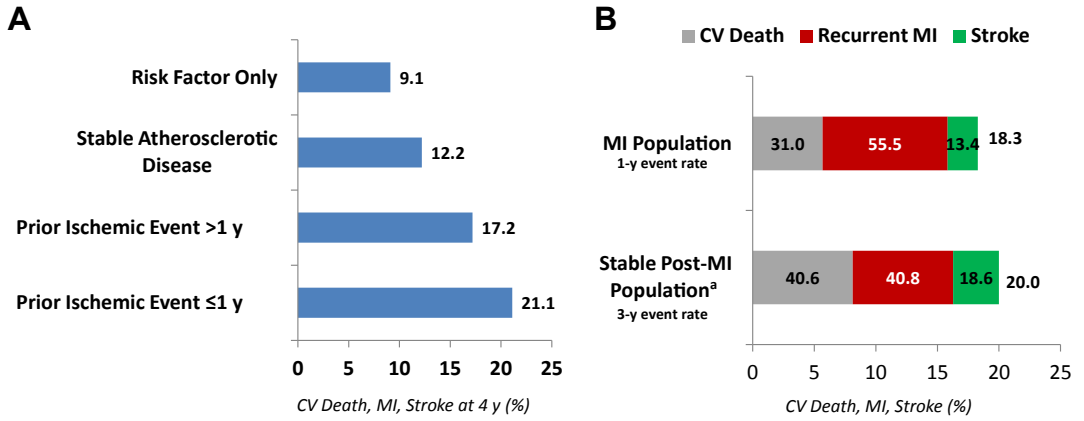

Fig. 2. Residual risk after MI. [a] Alive patients who did not experience MI or stroke during the first 365 days after MI. (*Data from* Bhatt DL, Eagle KA, Ohman EM, et al. Comparative determinants of 4-year cardiovascular event rates in stable outpatients at risk of or with atherothrombosis. JAMA 2010;304:1350–7; and Jernberg T, Hasvold P, Henriksson M, et al. Cardiovascular risk in post-myocardial infarction patients: nationwide real world data demonstrate the importance of a long-term perspective. Eur Heart J 2015;36:1163–70.)