

Editorial



Aspirin Monotherapy beyond 12 Months of Dual Antiplatelet Therapy in Patients with Acute Myocardial Infarction: Oldies But Goodies?

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Conflict of Interest

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► See the article “Clopidogrel versus Aspirin after Dual Antiplatelet Therapy in Acute Myocardial Infarction Patients Undergoing Drug-Eluting Stenting” in volume 50 on page 120.

Current guidelines recommend that continuing dual antiplatelet therapy (DAPT) beyond 12 months may be reasonable in some patients with acute coronary syndrome (ACS). These include patients with non-ST elevation (NSTEMI)-ACS or ST-elevation myocardial infarction (STEMI) treated with coronary stent implantation who have tolerated DAPT without a bleeding complication and do not present a high bleeding risk.^{1,2)}

After 12 months of DAPT, antiplatelet monotherapy may be administered to patients with a high risk of bleeding. While aspirin remains the mainstay for secondary prevention of recurrent ischemic events in patients with atherosclerotic vascular diseases,³⁾ clopidogrel has been reserved for patients who are unable to take aspirin because of an aspirin allergy or significant gastrointestinal adverse event. However, few studies have performed a head-to-head comparison between aspirin and clopidogrel beyond 12 months of DAPT in patients with ACS.

An observational study of patients who underwent drug-eluting stent (DES) found that after 36 months of antiplatelet monotherapy, clopidogrel was associated with a reduced risk for a composite of cardiac death, myocardial infarction (MI), or stroke (aspirin versus clopidogrel; 3.8% vs. 2.6%; hazard ratio [HR], 0.54; 95% confidence interval [CI], 0.32–0.92; p=0.02).³⁾ Thrombolysis in myocardial infarction (TIMI) major bleeding occurred similarly in both groups (0.9% vs. 1.3%; HR, 1.03; 95% CI, 0.46–2.32; p=0.95).³⁾ However, less than half of the enrolled patients were diagnosed as having ACS at the index procedure.

In this issue, Sim et al.⁴⁾ presented timely results from the Korean Myocardial Infarction Registry-National Institute of Health (KAMIR-NIH) data comparing clopidogrel versus aspirin after DAPT in acute MI myocardial infarction patients undergoing drug-eluting stenting.⁴⁾ Among MI patients with DES who completed 12 months of DAPT without ischemic or bleeding events (n=7,335), most of them continued DAPT (n=5,262 patients; 71.7%) while some transferred to monotherapy (n=2,073 patients; 28.3%). From these patients, 1,939 (24.9%: clopidogrel 534 vs. aspirin 1,285) maintained monotherapy for 24 months. The authors performed a 12-month follow-up after monotherapy to analyze the net adverse clinical events (NACE), defined as a composite of death from any cause, MI, repeat PCI,

stent thrombosis, ischemic stroke, or TIMI major bleeding. They controlled for differences in baseline characteristics and potential confounding factors with an inverse probability of treatment weighting (IPTW) approach based on the propensity score. In the IPTW-adjusted sample, patients who received clopidogrel monotherapy had a similar incidence of NACE compared to those with aspirin monotherapy (0.7% vs. 0.7%; HR, 1.06; 95% CI, 0.31–3.60; $p=0.923$). Other secondary endpoints, including TIMI major bleeding, showed no difference between the two therapy groups.

This study reported valuable information. First, more than 70% of acute MI patients in Korea maintained DAPT even after 12 months of DAPT therapy. The DAPT study showed that extending DAPT past 12 months following PCI resulted in lesser stent thrombosis and recurrent MI events, but more bleeding events and higher all-cause mortality.⁵⁾ Given that patients with a history of MI represent the highest risk group for future cardiovascular events, extended DAPT in this group is reasonable. In this study, the mean DAPT and PREdicting bleeding Complications In patients undergoing Stent implantation and subSEquent (PRECISE)-DAPT scores were 1.6 and 17, respectively, and switching to monotherapy in this population appeared to be adequate. The PRECISE-DAPT score proved useful in predicting 1-year bleeding in Korean patients receiving DAPT, regardless of the definition of bleeding.⁶⁾ We may use this risk algorithm more actively to decide DAPT duration.

Second, aspirin (71.9%) is preferred over clopidogrel (29.1%) as a monotherapy option. Korean physicians seem to follow the current clinical guidelines that suggest aspirin over clopidogrel. This may also be due to the cost difference between the two drugs and concerns regarding clopidogrel resistance. Thirdly, there were no differences in NACE occurrence between aspirin and clopidogrel monotherapy during the 12-month follow-up period in both groups (0.7% in both; lower than that in other randomized controlled trials).^{7,8)} While clinical events may result in underreporting in registries, this would be true for both the aspirin and clopidogrel groups, and hard endpoints such as death, MI, or severe bleeding are considered less likely to be missed. A further large-scale randomized trial is warranted to confirm the findings from this study and to adjust monotherapy regimens for both higher- and lower-risk patients.

The Harmonizing Optimal Strategy for Treatment of Coronary Artery Stenosis-EXtended Antiplatelet Monotherapy (HOST-EXAM) is a prospective, randomized, open-label, multicenter, comparative effectiveness trial, comparing clopidogrel (75 mg once daily) and aspirin (100 mg once daily) as long-term antiplatelet agents.⁹⁾ The trial expects to provide vital answers regarding which monotherapy is better following 12 months of DAPT.

In conclusion, administration of DAPT should be attempted according to objective criteria in MI patients who have undergone DES. In addition, based on current guidelines and data from Sim et al., aspirin may be prescribed as a first-line monotherapy in eligible candidates.⁴⁾

REFERENCES

1. Valgimigli M, Bueno H, Byrne RA, et al. 2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS. *Eur J Cardiothorac Surg* 2018;53:34-78.
[PUBMED](#) | [CROSSREF](#)
2. Levine GN, Bates ER, Bittl JA, et al. 2016 ACC/AHA guideline focused update on duration of dual antiplatelet therapy in patients with coronary artery disease: a report of the American College of

- Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2016;68:1082-115.
[PUBMED](#) | [CROSSREF](#)
3. Park TK, Song YB, Ahn J, et al. Clopidogrel versus aspirin as an antiplatelet monotherapy after 12-month dual-antiplatelet therapy in the era of drug-eluting stents. *Circ Cardiovasc Interv* 2016;9:e002816.
[PUBMED](#) | [CROSSREF](#)
 4. Sim DS, Jeong MH, Kim HS, et al. Clopidogrel versus aspirin after dual antiplatelet therapy in acute myocardial infarction patients undergoing drug-eluting stenting. *Korean Circ J* 2020;50:120-9.
[PUBMED](#) | [CROSSREF](#)
 5. Mauri L, Kereiakes DJ, Yeh RW, et al. Twelve or 30 months of dual antiplatelet therapy after drug-eluting stents. *N Engl J Med* 2014;371:2155-66.
[PUBMED](#) | [CROSSREF](#)
 6. Choi SY, Kim MH, Cho YR, et al. Performance of PRECISE-DAPT score for predicting bleeding complication during dual antiplatelet therapy. *Circ Cardiovasc Interv* 2018;11:e006837.
[PUBMED](#) | [CROSSREF](#)
 7. Bonaca MP, Bhatt DL, Cohen M, et al. Long-term use of ticagrelor in patients with prior myocardial infarction. *N Engl J Med* 2015;372:1791-800.
[PUBMED](#) | [CROSSREF](#)
 8. Bhatt DL, Fox KA, Hacke W, et al. Clopidogrel and aspirin versus aspirin alone for the prevention of atherothrombotic events. *N Engl J Med* 2006;354:1706-17.
[PUBMED](#) | [CROSSREF](#)
 9. Lee H, Koo BK, Park KW, et al. A randomized clinical trial comparing long-term clopidogrel vs aspirin monotherapy beyond dual antiplatelet therapy after drug-eluting coronary stent implantation: design and rationale of the Harmonizing Optimal Strategy for Treatment of coronary artery stenosis-Extended Antiplatelet Monotherapy (HOST-EXAM) trial. *Am Heart J* 2017;185:17-25.
[PUBMED](#) | [CROSSREF](#)