



# Prescribing statins for patients with ACS? No need to wait

## The best time to start a statin in patients with acute coronary syndrome is before they undergo percutaneous coronary intervention.

### PRACTICE CHANGER

Prescribe a high-dose statin before any patient with acute coronary syndrome (ACS) undergoes percutaneous coronary intervention (PCI); it may be reasonable to extend this to patients being evaluated for ACS.<sup>1</sup>

### STRENGTH OF RECOMMENDATION

**A:** Based on a meta-analysis

Navarese EP, Kowalewski M, Andreotti F, et al. Meta-analysis of time-related benefits of statin therapy in patients with acute coronary syndrome undergoing percutaneous coronary intervention. *Am J Cardiol.* 2014;113:1753-1764.

### ILLUSTRATIVE CASE

A 48-year-old man comes to the emergency department with chest pain and is diagnosed with ACS. He is scheduled to have PCI within the next 24 hours. When should you start him on a statin?

Statins are the mainstay pharmaceutical treatment for hyperlipidemia, and are used for primary and secondary prevention of coronary artery disease and stroke.<sup>2,3</sup> Well-known for their cholesterol-lowering effect, they also have benefits that are independent of their effects on lipids, including improving endothelial function, decreasing oxidative stress, and decreasing vascular inflammation.<sup>4-6</sup>

Compared to patients with stable angina, patients with ACS experience markedly higher rates of coronary events, especially immediately before and after PCI and during

the subsequent 30 days.<sup>1</sup> American College of Cardiology/American Heart Association (ACC/AHA) guidelines for the management of non-ST elevation myocardial infarction (NSTEMI) advocate starting statins before patients are discharged from the hospital, but they don't specify precisely when.<sup>7</sup>

Considering the higher risk of coronary events before and after PCI and statins' pleiotropic effects, it is reasonable to investigate the optimal time for starting statins in patients with ACS.

### STUDY SUMMARY

#### Meta-analysis of 20 RCTs shows statins before PCI cuts risk of MI

Navarese et al<sup>1</sup> performed a systematic review and meta-analysis of studies comparing the clinical outcomes of patients with ACS who received statins before or after PCI (statins group) vs those who received low-dose statins or no statins (control group). The authors searched PubMed, Cochrane, Google Scholar, and CINAHL databases as well as key conference proceedings for studies published before November 2013. Using reasonable inclusion and exclusion criteria and appropriate statistical methods, they analyzed the results of 20 randomized controlled trials that included 8750 patients. Four studies enrolled only patients with ST elevation MI, 8 were restricted to NSTEMI, and the remaining 8 studies enrolled patients with any type of MI or unstable angina.

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## INSTANT POLL

When would you typically start a statin for patients with acute coronary syndrome (ACS)?

- As soon as they present with symptoms that suggest ACS
- A few days to a few hours before they undergo percutaneous coronary intervention (PCI)
- A few hours to a few days after they undergo PCI
- I would not prescribe a statin for these patients

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For patients who were started on a statin before PCI, the mean timing of administration was  $0.53 \pm 0.42$  days before. For those started after PCI, the average time to administration was  $3.18 \pm 3.56$  days after.

Whether administered before or after PCI, statins reduced the incidence of MIs. The overall 30-day incidence of MIs was 3.4% (123 of 3621) in the statins group and 5% (179 of 3577) in the control group. This resulted in an absolute risk reduction of 1.6% (number needed to treat=62.5), and a reduction of the odds of MI by 33% (odds ratio [OR]=0.67; 95% confidence interval [CI], 0.53-0.84;  $P=.0007$ ). There was also a trend toward reduced mortality in the statin group (OR=0.66; 95% CI, 0.43-1.02;  $P=.06$ ).

In addition, administering statins before PCI resulted in a greater reduction in the odds of MI at 30 days (OR=0.38; 95% CI, 0.24-0.59;  $P<.0001$ ) than starting them post-PCI (OR=0.85; 95% CI, 0.64-1.13;  $P=.28$ ) when compared to the controls. The difference between the pre-PCI OR and the post-PCI OR was statistically significant ( $P=.002$ ). These findings persisted past 30 days ( $P=.06$ ).

#### WHAT'S NEW

##### Early statin administration is most effective

According to ACC/AHA guidelines, all patients with ACS should be receiving a statin by the time they are discharged. However, when to start the statin is not specified. This meta-analysis is the first report to show that administering a statin before PCI can significantly reduce the risk of subsequent MI.

#### CAVEATS

##### Benefits might vary with different statins

The studies evaluated in this meta-analysis used various statins and dosing regimens, which could have affected the results. However, sensitivity analyses found similar benefits across different types of statins. In addition, most of the included trials used high doses of statins, which minimized the potential discrepancy in outcomes from various dosing regimens. And while the included studies were not perfect, Navarese et al<sup>1</sup> used reasonable methods to identify potential biases.

#### CHALLENGES TO IMPLEMENTATION

##### No barriers to starting statins earlier

Implementing this intervention may be as simple as editing a standard order. This meta-analysis also suggests that the earlier the intervention, the greater the benefit, which may be an argument for starting a statin when a patient first presents for evaluation for ACS, since the risks of taking a statin are quite low. We believe it would be beneficial if the next update of the ACC/AHA guidelines<sup>7</sup> included this recommendation. **JFP**

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Administering statins before PCI resulted in a greater reduction in the odds of MI than starting them afterward.