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Editorial

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Benefit of Early Statin Therapy in Acute Myocardial Infarction in Korea

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▸ See the article "Benefit of Early Statin Initiation within 48 Hours after Admission in Statin-Naive Patients with Acute Myocardial Infarction Undergoing Percutaneous Coronary Intervention" in volume 49 on page 419.

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Current European and American guidelines endorse the use of statin in patients with acute myocardial infarction (AMI) as early as possible.[1] Previous guidelines of the National Cholesterol Education Program Adult Treatment Panel (ATP) recommended to measure lipid profiles on admission or within 24 hours but did not emphasize the timing of the initiation in statin therapy.[2] Actually, there are only a few data regarding the timing of statin therapy in AMI. From Myocardial Ischemia Reduction with Aggressive Cholesterol Lowering trial, administration of atorvastatin 80 mg/day within 4 days of acute coronary syndrome (ACS) event compared to placebo significantly decreased the risks of major adverse cardiovascular events (MACEs).[3] Similarly, the Pravastatin or Atorvastatin with Aggressive Cholesterol Lowering (PROVE-IT) trial showed that administration of atorvastatin 80 mg/day over pravastatin 40 mg/day within 10 days of ACS event significantly improved the MACEs.[4] Although these studies were not designed to determine the optimal initiation timing of statin therapy, subgroup analysis from PROVE-IT trial demonstrated that earlier initiation of statin therapy provided more immediate benefit in those patients. In a meta-analysis investigating effects of pre-procedural statin therapy, statins administered before percutaneous coronary intervention significantly reduced post-procedural myocardial infarction (MI).[5] These data were integrated into recent AMI guidelines and recommended the statin therapy as soon as possible. Although several studies were conducted for investigating optimal initiation timing of statin therapy and their clinical benefits, more studies are needed to establish optimal timing for statin initiation especially in statin naïve patients. In this aspect, Kim et al.[6] provided valuable evidence of the national trend and evidence for early statin therapy in Korea.

The authors reported a large prospective, multi-center data showing the clinically relevant practice of statin therapy in statin-naïve patients with AMI in Korea between 2004 and 2009,[6] and they have well summarized and emphasized the importance of early statin initiation within 48 hours after AMI during a median follow-up period of almost 4 years. Among a total of 4,748 statin-naïve AMI patients, 613 (12.9%) patients were not prescribed with a statin at the timing of discharge. However, statin therapy was started within 48 hours in more than 80% of AMI patients in Korea, and statin was administrated within the first 24 hours in 56% of AMI patients. The rate of statin initiation within the first 24 hours in Korea was relatively higher than other registry data of only 22.4%.[7] High risk characteristics

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including higher Killip classes (3 or 4) and ST-elevation MI delayed the initiation of statin therapy in this study. However, the Korea AMI Registry showed that early statin therapy in AMI patients even with cardiogenic shock lowered in-hospital mortality and MACE.[8] As the authors pointed out, statins should be administrated in all AMI patients without definite contraindication as soon as possible.

Actually, initiation of statin within the first 24 hours significantly lowered in-hospital mortality rate compared to no statin use (4.0% vs. 15.4%; unadjusted odds ratio, 0.23; 95% confidence interval, 0.22–0.25).[7] In this study, early initiation of statin within 48 hours after AMI showed significantly lower MACE, nonfatal spontaneous MI, target vessel revascularization and stent thrombosis. However, there were no differences in the incidence of MACE or other endpoints between the early (<24 hours) and later statin initiation (24–48 hours) groups. Although early statin initiation group was younger and less prevalent in hypertension than the other groups, proportions of smoking, diabetes mellitus, familial history of coronary artery disease, chronic kidney disease, previous cerebrovascular accident, and previous MI were similar to the other groups. The authors meticulously compared the outcomes by using the propensity score-matched models, confirming that early statin initiation was beneficial.

Pleiotropic effect and patient adherence of the statin might play important roles.[9] Pleiotropic effects of statin such as decreasing inflammation, inhibiting platelet aggregation, improving endothelial function, stimulating endothelial progenitor cells, or increasing plaque stability could decrease reperfusion injury and MI size in AMI. Evidences of pre-procedural high-dose statin in ACS improving microvascular myocardial perfusion and reducing infarct size also support the importance of early statin initiation. Furthermore, Cardiac Hospitalization Atherosclerosis Management Program trial demonstrated that starting statin therapy before hospital discharge improved the achievement rate of target low density lipoprotein (LDL) cholesterol level.[10] If statin therapy is not initiated in the acute phase of AMI, physicians tend to repeat their prescriptions without statin in outpatient clinic, thereby losing enormous benefit of reducing MACEs in AMI patients.

Unfortunately, there was no data of statin type, dose or compliance in this registry. Because this study was mainly conducted according to ATP III guideline, mean follow-up LDL cholesterol level was about 82 mg/dL, which might be considered as suboptimal lipid-lowering therapy in recent days. Therefore, the prescription pattern of statin doses in this study could be different from current practices. Nonetheless, this study will provide evidences for early initiation of statin therapy in a large number of statin-naïve AMI patients. Statin therapy is recommended in all patients with AMI, unless absolutely contraindicated, and should be started as early as possible within 48 hours. Early initiation of statin therapy can increase statin adherence after discharge and provides clinical benefits to statin-naïve AMI patients.

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