Beta-blockers following angioplasty show little benefit for some older patients

August 15 2016

Following coronary angioplasty, beta-blockers did not significantly improve mortality rates or reduce the number of future cardiovascular incidents for older patients with stable angina but no history of heart attack or heart failure, according to a study published today in the *JACC: Cardiovascular Interventions*.

Using data from the NCDR CathPCI Registry linked with Medicare information, researchers examined records from 755,215 patients from 1,443 sites between January 2005 and March 2013. Of this group, 71.4 percent received a prescription for beta-blockers, medication used to control blood pressure and other heart-related conditions. The patients on beta-blockers tended to be younger, female, and more likely to have a history of hypertension, diabetes, high cholesterol, smoking, dialysis, and prior angioplasty.

After adjusting for age, gender, body mass index, smoking status, hypertension, and other variables, researchers found no significant differences in outcomes at 30 days. Mortality rates and the occurrence of cardiac events were both under 1 percent.

At the three-year mark, patients taking beta-blockers had the following outcomes compared to those who were not:

- Mortality rate: 14 percent vs. 13.3 percent
- Incidence of heart attack: 4.2 percent vs. 3.9 percent
- Occurrence of stroke: 2.3 percent vs. 2 percent

- Occurrence of a revascularization procedure: 18 percent vs. 17.8 percent

The study also found that at three years, 8 percent of patients taking beta-blockers were readmitted to the hospital due to heart failure, compared to 6.1 percent of patients not on this medication. The use of beta-blockers for angioplasty patients treated for stable angina increased over the eight-year study period.

Stable angina, a symptom of coronary artery disease, is characterized by chest pain associated with activity or emotional stress. It typically occurs when the heart doesn't get as much blood as it needs, usually the result of one or more blocked arteries.

Apurva A. Motivala, M.D., FACC, FSCAI, the study's lead author and an interventional cardiologist affiliated with New York-Presbyterian Hospital/Columbia University, said the apparent lack of efficacy of beta-blockers in this group of patients may seem counterintuitive.

Motivala also said that because these patients had a higher prevalence of traditional risk factors that lead to adverse cardiac events, it is possible that without beta-blockers, they would not have done as well. The reasons for the increased incidence of hospital readmissions due to heart failure in this group remain unclear and require further study.

In an accompanying editorial, Anthony G. Nappi, M.D., a cardiologist at Albany Stratton VA Medical Center, and William F. Boden, M.D., FACC, professor of medicine at Albany Medical College and chief of medicine at Albany Stratton VA Medical Center, said that some of the findings may be the result of selection bias with respect to which patients received a beta-blocker prescription.

But the editorial writers said that by focusing on a Medicare population,

the investigators may have controlled for some of the selection bias, though data are lacking on overall beta-blocker adherence.

They also said that the increased frequency in beta-blocker prescriptions over time "is perhaps not surprising" and part of changing ideas about optimal medical therapy for coronary artery disease. This study, along with others, raises questions about the continued role of beta-blockers in patients with coronary artery disease undergoing angioplasty, especially since there is no evidence of clinical benefit in patients without prior heart attack or heart failure.

"Clinicians will need to decide whether they will continue to extrapolate older scientific evidence of beta-blocker efficacy in selected post-heart attack populations from an earlier era prior to the advent of angioplasty and optimal medical therapy," Nappi and Boden wrote. "Perhaps such treatment decisions need to be guided by physician judgment and hence individualized to the level of patient benefit versus risk, because definitive evidence is either imperfect or lacking."

Provided by American College of Cardiology