Bisphosphonate CV Calcification Varies by Age

BY BRUCE JANCIN

ORLANDO — Bisphosphonate therapy was associated with a reduced prevalence of cardiovascular calcification in older women but a paradoxical increased prevalence in women under age 65 years, compared with bisphosphonate nonusers in the Multi-Ethnic Study of Atherosclerosis.

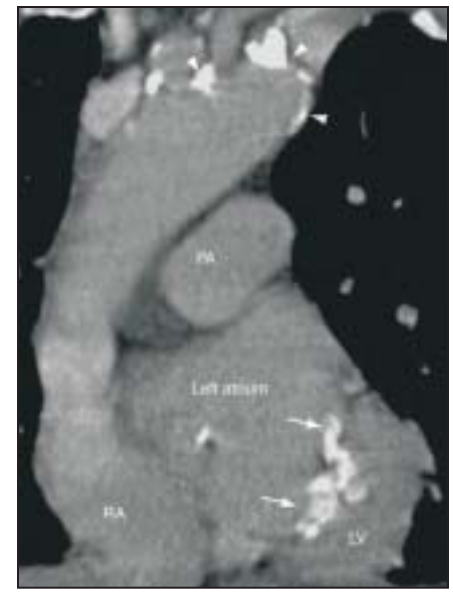
Since MESA is an observational study, this finding has to be considered hypothesis generating, not definitive. It remains unclear whether the unexpectedly higher prevalence of cardiovascular calcification in younger bisphosphonate users in MESA is the result of their likely shorter duration of treatment, differential drug effects, age-related differences in the pathogenesis of calcification, indication bias related to osteoporosis, or even chance, Dr. Sammy Elmariah observed at the annual scientific sessions of the American Heart Association.

Given the profound tolls that cardiovascular disease and osteoporosis take in women, replication of these new MESA findings should be sought in other large data sets, added Dr. Elmariah of Mount Sinai School of Medicine, New York.

MESA is an ongoing National Heart, Lung, and Blood Institute–funded longitudinal study of an ethnically diverse group of 6,814 men and women aged 45-84 years. All were free of cardiovascular symptoms at baseline.

Dr. Elmariah and his coworkers analyzed baseline data on bisphosphonate use and cardiovascular calcification in 3,636 participating women, 2,181 of whom were under age 65. MESA included 214 women on baseline bisphosphonate therapy.

Among women aged 65 or older, bisphosphonate use was associated with a significantly lower prevalence of cardiovascular calcification at nearly all anatomic sites assessed. Aortic valve calcification was 33% less common in the older bisphosphonate users than in nonusers in multivariate analyses adjusted for age, body mass index, ethnicity, socioeconomic variables, cardiovascular risk factors, statins, and hormone replacement therapy. Aortic valve ring calcification was 35% less common. Calcification of the mitral annulus was 46% less common in older bisphosphonate users, and thoracic aorta calcification was 32% less prevalent, he said.



Calcification (arrows) was increased in younger bisphosphonate users.

The only anatomic site where calcification wasn't significantly less common in older bisphosphonate users than nonusers was in the coronary arteries, where the adjusted 10% reduction in favor of the bisphosphonate users fell short of statistical significance, Dr. Elmariah continued.

The story was very different in women under the age of 65 years. Younger bisphosphonate users were an adjusted fourfold more likely to have aortic valve calcification than were bisphosphonate nonusers, 1.9-fold more likely to have aortic valve ring calcification, and 2.4-fold more likely to have calcification of the mitral annulus. They also had 2.2-fold and 1.2-fold increased rates of calcification of the thoracic aorta and coronary arteries, respectively. All of these differences achieved statistical significance.

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