Does Hyperglycemia Predict Progression of Atherosclerosis in Postmenopausal Women?

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Vascular -- Pathophysiology—Clinical
Abstract Category: 10. Vascular—Pathophysiology—Clinical
Session-Poster Board Number: 1146-113

Authors: Soha Ahmad, Joseph Lindsay, Xue Zhenyi, Angela Silverman, Washington Hospital Center, Washington, DC

Background: The Women’s Angiographic Vitamin and Estrogen (WAVE) trial was a randomized study of hormone replacement therapy and antioxidant vitamins effect on progression of atherosclerosis. No effect was found. Using this data set we evaluated whether progression of atherosclerosis was predicted by hemoglobin A1C.

Methods: Women were eligible for inclusion with at least one coronary narrowing of >=50% at the time of an indicated angiogram. No intervention was allowed. Quantitative coronary angiography (QCA) was used to measure minimum luminal diameter (MLD) and average luminal diameter (ALD) at baseline and follow up in the original trial (320 subjects, 1735 coronary segments, a mean of six segments per subject). The QCA data was grouped based on HbA1C at baseline irrespective of a history of diabetes: HbA1C<6.0, 6=<HbA1C<7, HbA1C>=7. Also, data was grouped based on hypoglycemic medication use.

Results: Patients with higher HbA1C showed a larger reduction in MLD and ALD at follow up. Subjects placed on insulin at a follow up visit showed the largest reduction in MLD and ALD.

Conclusion: In postmenopausal women, a higher HbA1C was associated with accelerated atherosclerosis. Those with insulin added at a follow up visit showed more accelerated atherosclerosis even compared to those on insulin throughout the study. This could indicate that worsening of diabetic disease burden, triggering the addition of insulin at follow up, affected progression of atherosclerosis and not use of insulin itself.