

Clinical Pathology Selected Abstracts, 9/14

Clinical pathology abstracts editor: Deborah Sesok-Pizzini, MD, MBA, associate professor, Department of Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, and medical director, Blood Bank and Transfusion Medicine, Children's Hospital of Philadelphia.

Potential link between vitamin D and subclinical cerebrovascular disease

Vitamin D deficiency has been associated with several diseases, including hypertension, diabetes mellitus, and stroke. A recent prospective population-based study of cardiovascular disease showed that subclinical infarcts and white matter hyperintensities (WMHs) are commonly seen on brain magnetic resonance image scans of older adults and are associated with cardiovascular disease risk factors and prior stroke. The lesions are also associated with reduced functioning on cognitive tests. What is unknown, however, is whether a novel and modifiable risk factor, such as vitamin D deficiency, may be associated with silent infarcts, WMHs, and cognitive decline. The authors conducted a study to examine the relationship between 25-hydroxyvitamin D (25(OH)D) levels and cerebrovascular abnormalities as assessed on brain MRI. The Atherosclerosis Risk in Communities (ARIC) Brain MRI study enrolled 15,792 middle-aged black and white subjects from four U.S. communities from 1987 through 1989. During the study, blood samples were collected and frozen for future studies. The authors examined subjects with no clinical history of stroke (n=1622) who had a cerebral MRI and then a second MRI approximately 10 years later (n=888). They then measured 25(OH)D levels using mass spectrometry, adjusting levels for race and calendar month. The results showed that lower 25(OH)D levels were not significantly associated with WMH score severity, prevalent high-grade WMH score, or prevalent infarcts. Furthermore, no significant associations were found between lower 25(OH)D levels and change in WMH volume, incident high WMH score, or incident infarcts on the follow-up MRI at approximately 10 years. The authors concluded that a single measure of 25(OH)D was not associated with WMH progression or subclinical brain infarcts seen on MRIs obtained 10 years apart. Therefore, they suggest that these findings do not support optimizing vitamin D levels for brain health.

Michos ED, Carson KA, Schneider ALC, et al. Vitamin D and subclinical cerebrovascular disease: The Atherosclerosis Risk in Communities Brain Magnetic Resonance Imaging Study [published online ahead of print May 26, 2014]. *JAMA Neurol.* doi:10.1001/jamaneurol.2014.755.

Correspondence: Erin D. Michos at edonnell@jhmi.edu