



21 Feb 2014 17:49

Intracranial atherosclerosis an important player in stroke in whites

Epidemiology

Last Updated: 2014-02-21 17:49:25 -0500 (Reuters Health)

By Megan Brooks

NEW YORK (Reuters Health) - Intracranial carotid artery calcification (ICAC) is a key risk factor for stroke among the general white population, according to new data from the Rotterdam Study.

"Intracranial atherosclerosis is considered an important cause of stroke in Asians and Africans. Thus far, the role of intracranial atherosclerosis in whites has been neglected," Dr. Arfan Ikram from Erasmus Medical Center, Rotterdam, the Netherlands, told Reuters Health by email.

"We show that in whites too this is a very important cause of stroke. In fact, we show that as you get closer to the brain, atherosclerosis in those closer vessels plays a much larger role in stroke than atherosclerosis in vessels that are far off, for example coronary atherosclerosis or aorta," Dr. Ikram said.

Between 2003 and 2006, a random sample of 2,323 white stroke-free adults underwent CT imaging to quantify ICAC volume and were monitored for the occurrence of stroke until 2012. Participants had a mean age of 69 years, and 52% were women.

Over the course of six years, 91 patients suffered a stroke, of which 74 were ischemic, 10 hemorrhagic and seven unspecified.

The researchers say larger ICAC volume was associated with a higher risk for stroke, independent of cardiovascular risk factors, ultrasound carotid plaque score and calcification in other vessels. The fully adjusted hazard ratio per 1 standard deviation increase in ICAC volume was 1.43.

They say ICAC "contributed to 75% of all strokes; for aortic arch and extracranial carotid artery calcification this incidence was only 45% and 25%, respectively."

"Our findings establish intracranial atherosclerosis as a major risk factor for

stroke in the general white population and suggest that its contribution to the proportion of all strokes may be greater than that of large-artery atherosclerosis in more proximally located vessel beds," they wrote in JAMA Neurology online February 17.

Dr. Ikram thinks doctors "should pay more attention to intracranial atherosclerosis as potential cause of stroke in white patients. Also, more studies should investigate if and how intracranial atherosclerosis can be prevented or treated. This could then have a great public health impact on the frequency of stroke."

In an interview with Reuters Health, Dr. Jonathan L. Brisman, director of cerebrovascular and endovascular neurosurgery at Winthrop-University Hospital and South Nassau Communities Hospital in New York, noted that there is "a lot of literature on intracranial calcification as a predictor of stroke; it is well known. They did look at a white population and other populations tend to be more affected." Dr. Brisman wasn't involved in the study.

As far as the population-attributable risk calculation, he cautions that "to say 75% of strokes are attributable to intracranial atherosclerotic disease, that wording is a little bit deceptive. For any given stroke, you don't know whether or not that was the definitively the cause."

The co-authors of an editorial published with the study echo these concerns. "While the current study suggests that intracranial carotid artery calcification is an important, previously seldom considered, risk factor for subsequent stroke in any vascular territory in white patients, the study did not show that the intracranial vascular lesions were the cause of the strokes," write Dr. Marc Chimowitz of the Medical University of South Carolina in Charleston and Dr. Louis Caplan of Beth Israel Deaconess Medical Center in Boston.

They point out that many of the ischemic strokes in the study were "almost surely not caused by intracranial carotid atherosclerosis because the strokes were either in a different vascular territory or were caused by other vascular diseases (eg, coexisting penetrating artery disease, a cardiac source of embolism). Moreover, at least 11% of the strokes in the study were hemorrhagic and no causal relationship has been established between intracranial arterial calcification and parenchymal brain hemorrhage."

Nonetheless, they say the study "raises important questions about the role of calcification in the pathophysiology of intracranial atherosclerosis and should reawaken interest in intracranial atherosclerosis as a cause of stroke in white individuals."

SOURCE: <http://bit.ly/NhzDDs> and <http://bit.ly/1my1PSw>
JAMA Neurol 2014.

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