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For Immediate Release:

Migraines with Aura in Middle Age May Be Associated with Late-Life Brain Lesions

Women who suffer from migraine headaches in middle age—particularly those accompanied by neurological aura—are more likely to have damage to brain tissue in the cerebellum later in life, according to a study by researchers at the Uniformed Services University of the Health Sciences, the National Institute on Aging (NIA) of the National Institutes of Health (NIH) and the Icelandic Heart Association in Reykjavik. The study appears in the June 24, 2009, issue of the *Journal of the American Medical Association*. The researchers found that migraine sufferers with aura are more susceptible than others to localized brain tissue damage identified on magnetic resonance images (MRI). In particular, women who reported having migraines with aura were almost twice as likely to have such damage in the cerebellum as women who reported not having headaches.

Researchers noted that while the study shows an association in women between migraine and cerebellar tissue damage later in life, the functional significance of such brain changes are likely to be minor, but this remains an open question. The cerebellum is located in the lower back side of the brain and is involved in functions such as motor activity, balance and cognition.

“This long-term population-based study increases interest in determining whether migraine could be a risk factor for brain lesions with clinical consequences over time,” said NIA Director Richard J. Hodes, M.D. “Further research should help us better understand what these changes may mean for individuals and brain function with age.”

Migraine headaches affect approximately 11 percent of adults and 5 percent of children worldwide and are more common in women than in men. Migraines are often accompanied by extreme sensitivity to light and sound, nausea and vomiting. Some individuals with migraine also experience neurological aura symptoms, including temporary visual disturbances that can appear as flashing lights, zig-zag lines or loss of vision.

“Earlier research has suggested that individuals with migraine, primarily those who experience these neurological aura symptoms, are at somewhat increased risk of asymptomatic stroke-like lesions, particularly in the cerebellum,” said Ann Scher, first author on the study and associate professor of epidemiology at the USU. “The reason for this is uncertain, but the question has public health importance.”

This study examined the effects of migraine in a community-dwelling cohort of older people. Between 1972 and 1986, when participants were middle-aged (average age 50.9, range 33 to 65), they were asked about type and frequency of headaches. MRI scans of the cortex and cerebellum brain regions were conducted on 4,600 study participants between 2002 and 2006, when participants’ average age was 76.2.

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Participants were divided into four groups: migraine headache with aura once or more per month, migraine headache without aura, non-migraine headache and no headache. The researchers found that overall, 17 percent of the women were classified as having migraine headaches, including 10.3 percent with migraine with aura. Only 5.7 percent of men were classified as having migraine. Overall, MRI scans revealed the presence of any brain lesion in 39.3 percent of the men and 24.6 percent of the women. Prevalence of cerebellar lesions in women with migraine with aura was 23.0 percent vs. 14.5 percent for women not reporting headaches. There was no difference in prevalence of these lesions in men (19.3 vs. 21.3 percent).

“After adjusting for risk factors for cardiovascular disease, transient ischemic attack or stroke in middle age or late life, we found that women who suffered from migraines with aura in middle age had an almost two-fold increased risk of brain lesions in the cerebellum later in life,” said Lenore Launer, Ph.D., senior author and chief of the neuroepidemiology section of the Laboratory of Epidemiology, Demography, and Biometry in the NIA’s Intramural Research Program.

Participants were part of the Reykjavik Study and the Age Gene/Environment Susceptibility-Reykjavik Study (AGES-RS). Originally established to study heart disease in Iceland, the Reykjavik Study includes a random sample of men and women born between 1907 and 1935 and living in Reykjavik at the beginning of the study in 1967. In 2002, AGES-RS continued the Reykjavik Study to examine risk factors, genetic susceptibility and gene-environment interactions in relation to disease and disability in later life.

This study was funded by the National Institute on Aging, the Icelandic Heart Association and the Icelandic Parliament. Components of the study were also supported by the National Eye Institute, the National Institute on Deafness and Other Communication Disorders, the National Heart Lung and Blood Institute and the Migraine Research Foundation.

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About the Uniformed Services University of the Health Sciences

Located on the grounds of Bethesda’s National Naval Medical Center and across from the National Institutes of Health, USU is the nation’s federal school of medicine and graduate school of nursing. The university educates health care professionals dedicated to career service in the Department of Defense and the U.S. Public Health Service. Students are active-duty uniformed officers in the Army, Navy, Air Force and Public Health Service, who are being educated to deal with wartime casualties, natural disasters, emerging infectious diseases, and other public health emergencies. Of the university’s nearly 4,400 physician alumni and more than 400 advance practice nurses, the vast majority serve on active duty and are supporting operations in Iraq, Afghanistan, and elsewhere, offering their leadership and expertise. The University also has graduated more than 600 public health professionals.

About the National Institute of Aging

The NIA leads the federal effort supporting and conducting research on aging and the medical, social and behavioral issues of older people. For more information on research and aging, go to www.nia.nih.gov.

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