

Researchers identify susceptibility locus for intracerebral hemorrhage

March 21 2014, by Keith Herrell

(Medical Xpress)—Research led by a University of Cincinnati (UC) neurologist has identified and replicated a genomic susceptibility locus for intracerebral hemorrhage, raising the possibility of targeting a new risk factor for the most deadly subtype of stroke.

Results were published Thursday, March 20, in the *American Journal of Human Genetics*, a peer-reviewed scientific journal. Daniel Woo, MD, professor and vice chair of clinical research in the UC Department of Neurology and Rehabilitation Medicine and a member of the UC Neuroscience Institute, was first author of the study.

"Intracerebral hemorrhage (ICH) occurs when a blood vessel ruptures within the brain and is the subtype of stroke with the highest mortality rate," says Woo. "But in almost 40 percent of ICH cases, we don't know what caused it.

"So prevention is really of paramount importance—it's imperative that we find new [risk factors](#) in addition to the current ones, which include alcohol use and hypertension."

Woo and an international network of colleagues set out to find genetic variations that play a substantial role in risk of ICH. To accomplish that, they meta-analyzed data from six previously unpublished genome-wide association studies of ICH that enrolled subjects of European ancestry in the United States and Europe.

Finding two locations of interest from that analysis, chromosomal regions 1q22 and 12q21.1, the researchers then set out to replicate the results in an independent cohort from 19 U.S. centers that included Hispanic and African-American subjects in addition to subjects of European ancestry. They successfully replicated the results for a susceptibility locus on chromosomal region 1q22 for subjects of European and African-American ancestry, but not for Hispanics. (The susceptibility locus for 12q21.1 was not replicated.)

Woo notes that the 1q22 locus contains PMF1, a gene that codes the protein called polyamine-modulated factor 1. Polyamines are known to disrupt the blood-brain barrier and have been linked to cerebrovascular disease by several studies.

"If these results hold up, this class of proteins could be a completely new risk factor for stroke, just like hypertension or smoking," says Woo.

"Once we understand that this could be a risk factor, then we can develop numerous other investigations that could lead to identification of biological pathways that could eventually be targeted by novel therapeutic strategies."

Provided by University of Cincinnati

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