

Stroke risk factors in minority groups discovered

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A new study led by a University of Cincinnati researcher sheds light on risk factors for certain kinds of strokes among different racial and ethnic groups.

Daniel Woo, MD, vice chair of research in UC's Department of Neurology and a UC Health physician, was the principal investigator in a study published Aug. 23 in *JAMA*.

The study focused on intracerebral hemorrhage (ICH) patients. Woo said this particular type of [stroke](#) is caused by a blood vessel within the brain rupturing, compared to ischemic strokes where a blood clot prevents oxygen from flowing to the brain. ICH strokes are less common than ischemic strokes, but they are often deadly and cause high disability, he said.

ICH strokes occur in Black and Hispanic populations twice as often and an average of 10 years earlier in life compared to their white counterparts, but Woo said previous studies did not have large enough sample sizes to determine statistically significant risk factors for nonwhite

populations.

This unprecedented nationwide study recruited 1,000 Black, 1,000 Hispanic and 1,000 white patients, as well as 1,000 demographically matched control subjects from each group, to look at both genetic and environmental risk factors.

"Every time I pitched to somebody how important this was, everybody said you'll never be able to do it," Woo said. "And we finished the study on time, under budget because of the amazing work of my collaborators from around the country."

High blood pressure had previously been identified as a risk factor for white patients for ICH strokes occurring deeper in the brain, brainstem and cerebellum (nonlobar ICH), but this study found high blood pressure was a significant risk factor for Black and Hispanic patients for strokes both in the brainstem and in the lobes of the brain (lobar ICH).

Woo said Black and Hispanic individuals are three times more likely to suffer a brain hemorrhage if they have treated hypertension, but ICH is 12 times more likely in these populations if it is untreated.

A lack of [health](#) insurance is one of the biggest predictors for having untreated high blood pressure, Woo said. The study additionally found between 20-30% of all ICH in Black and Hispanic patients would not have occurred if they had adequate access to health care. About 6% of ICH in white patients would have been prevented through adequate access to insurance.

For the first time ever, this study also found sleep apnea as a novel risk factor for ICH strokes. Woo said sleep apnea's place as a stroke risk may be appearing now as obesity rates increase, since sleep apnea is more common in obese populations.

Woo's primary focus of research is the genetic factors leading to brain hemorrhage, but he noted

genetic factors represented smaller risk factors compared to other factors that can be changed, such as [high blood pressure](#), access to health care, obesity, [sleep apnea](#), alcohol use and smoking. Tackling these issues could help close the racial/ethnic disparities seen in ICH strokes.

"These are all treatable, modifiable factors that have enormous impact on people's risk," Woo said. "We can continue to look for these magic cures that will help prevent these risk factors from affecting our [brain](#), but it's probably better to treat the risk factors themselves."

Woo said ICH strokes are some of the most expensive types of strokes, considering the cost of treatment, hospitalization and rehabilitation. A public health measure to lower risk factors could pay for itself by reducing the number of ICH cases, he said.

"Offering effective preventive care is probably going to be even cost effective," he said. "Billions of dollars are wasted from a single year of cases. If we could prevent 10% of that, it would more than cover the cost of treating people's hypertension, for example. Then there are things that have almost no cost such as exercise, diet, and the economic benefits to the individuals and to society are massive for those kinds of public health efforts."

Going forward, Woo said plans are in the works for a follow-up study on ICH [risk factors](#) among Asian Americans.

More information: Steven J. Kittner et al, Ethnic and Racial Variation in Intracerebral Hemorrhage Risk Factors and Risk Factor Burden, *JAMA Network Open* (2021). DOI: [10.1001/jamanetworkopen.2021.21921](https://doi.org/10.1001/jamanetworkopen.2021.21921)

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