

Sickle cell anemia stroke prevention efforts may have decreased racial disparities

February 2 2012

The disparity in stroke-related deaths among black and white children dramatically narrowed after prevention strategies changed to include ultrasound screening and chronic blood transfusions for children with sickle cell anemia, according to research presented at the American Stroke Association's International Stroke Conference 2012.

Before stroke prevention efforts changed in 1998, black children were 74 percent more likely to die from [ischemic strokes](#) than white children. This gap is in part due to the increased rates of sickle cell anemia in black children. Between 1999 and 2007, that excess risk had dropped by almost two-thirds. Black children were 27 percent more likely to have ischemic strokes than white children, according to death certificate data for U.S. children who died of ischemic stroke from 1988 to 2007.

"We did expect to see a decline in [ischemic stroke] deaths, but we were impressed at how quickly after 1998 the [racial gap](#) started to narrow," said Laura Lehman, M.D., lead researcher and a clinical fellow in the Cerebrovascular Disorders and Stroke Program in the neurology department at Children's Hospital Boston.

The study is the first to examine [racial disparities](#) and sickle cell anemia-related stroke deaths in U.S. children using a comprehensive nationwide database. It was conducted while Lehman was a research fellow working with co-author Heather J. Fullerton, M.D., MAS, at the University of California San Francisco.

The stroke prevention protocols changed after the groundbreaking Stroke Prevention Trial in Sickle Cell Anemia (STOP) in 1998. The study showed chronic blood [transfusion therapy](#) lowered stroke risk by 90 percent in children with sickle cell anemia at high risk for stroke.

Sickle cell anemia is a [genetic blood disorder](#) that primarily affects African-Americans. Because children with sickle cell anemia generally have ischemic, instead of hemorrhagic strokes, researchers attribute the change in ischemic stroke deaths among black children to the effectiveness of the STOP trial.

In Lehman's study, ischemic stroke — the result of a blocked blood vessel to the brain — accounted for 20 percent of 4,425 deaths among black and white children. Hemorrhagic stroke, which occurs when a blood vessel ruptures, accounted for 67 percent of stroke deaths in the study.

Of the approximately 795,000 American adults and children who suffer a stroke each year, more than 137,000 die.

Researchers reviewed death certificate data from the National Center of Health Statistics for all U.S. children under age 20 from 1988 to 2007.. Researchers calculated relative risks of death between African-American and [white children](#). The death records did not reflect which patients had sickle cell anemia, so the authors could not conclude that the STOP trial was the cause of the narrowing racial disparity they observed.

"However, this was the only major change in pediatric stroke care in the past two decades, so we believe it was the most plausible explanation for our findings," Lehman said.

High stroke risk among children with sickle cell anemia is detected by a transcranial Doppler ultrasound test. Children with the disease should

undergo an ultrasound to determine their stroke risk, and those at high risk should undergo chronic [blood transfusion](#) therapy, Lehman said.

In sickle cell anemia, normally round red blood cells become crescent-shaped, making it harder for blood to flow. The result is tissue damage and complications such as stroke, which occur in about 10 percent of children with sickle cell anemia without intervention.

[Sickle cell anemia](#) affects both [children](#) and adults. However, adults tend to have hemorrhagic instead of ischemic strokes, Lehman said. Future research is needed to determine if [stroke](#) prevention protocols are associated with fewer deaths among black adults.

Provided by American Heart Association

Citation: Sickle cell anemia stroke prevention efforts may have decreased racial disparities (2012, February 2) retrieved 17 July 2024 from <https://medicalxpress.com/news/2012-02-sickle-cell-anemia-efforts-decreased.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.