

Draining blood from bleeding stroke may prevent death

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A minimally invasive surgery combining the use of a clot-busting drug and a catheter to drain blood from the brain of hemorrhagic stroke patients reduced swelling and improved patients' prognoses, according to preliminary research to be presented in Honolulu at the American Stroke Association's International Stroke Conference 2019.

Hemorrhagic stroke, a weakening of the blood vessel wall that causes blood to leak into the brain tissue, was responsible for 3.3 million deaths in 2015. And there are no proven therapies to treat it, according to the American Heart Association.

Researchers in this phase 3 trial studied treating [hemorrhagic stroke](#) using the minimally [invasive surgery](#) plus alteplase for intracerebral hemorrhage evacuation (MISTIE) procedure, in which a catheter is surgically placed into the blood clot in the brain tissue and the drug alteplase is administered to more efficiently drain blood from the brain.

"We know from human and [animal research](#) that intracerebral (within the brain) hemorrhage [blood clots](#) are toxic to brain tissue. The toxicity of blood causes swelling in the brain that, together with the initial bleed, contributes toward poor outcomes, such as speech problems, difficulty walking and even paralysis," said W. Andrew Mould, M.P.H., study author and research program manager at the Division of Brain Injury Outcomes at Johns Hopkins University in Baltimore, Maryland.

Researchers compared results from standard of care treatment (American Heart Association guidelines) to the MISTIE procedure in 500 hemorrhagic stroke patients.

They confirmed results from their earlier phase 2 MISTIE study showing that the more blood removed, the larger the reduction in swelling, regardless of the size of the initial bleed. MISTIE

patients had a larger decrease in [brain tissue](#) swelling than patients in the medical group. The researchers reported that with every 10 millileter of increased swelling volume, patients were 25 percent more likely to die at 30 days and 15 percent more likely to die 180 days after stroke.

"To patients, this reduction in blood and swelling volume may mean a faster recovery with improved outcomes and a shorter time to return home. MISTIE has the potential to establish the first viable treatment to improve functional outcomes for hemorrhagic stroke patients," Mould said.

Provided by American Heart Association

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