

Dehydration linked to worsening stroke conditions

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People who are well hydrated at the time of their stroke have a greater chance of better recovery compared to people who are dehydrated, according to research presented at the American Stroke Association's International Stroke Conference 2015.

Researchers gathered baseline lab measurements and MRI scans on ischemic (clot-caused) [stroke](#) patients admitted to the Comprehensive Stroke Center at Johns Hopkins Hospital between July 2013 and April 2014. Hydration levels were evaluated based on two well-accepted measurements —BUN/creatinine ratio, which shows how well the kidneys work; and urine specific gravity, which tests urine concentration.

After evaluating 168 ischemic [stroke patients](#), researchers found almost half of them were dehydrated when admitted to the hospital for stroke.

Researchers also found:

- Stroke condition worsened or stayed the same in 42 percent of dehydrated patients, compared to only 17 percent of hydrated patients.
- Dehydrated stroke patients also had about a four times higher risk of their conditions worsening than hydrated patients.

"Perhaps we should be giving more fluids to patients after stroke...but that's not what providers consistently do," said Mona Bahouth, M.D., lead researcher and stroke fellow at Johns Hopkins Hospital in Baltimore, Maryland.

Current hospital protocols advise caution administering fluids during a stroke because patients could also have heart problems. The main concern is that overloading patients with heart problems with water may lead to volume overload and fluid backing up to the lungs. Doctors don't

suggest drinking water while having a stroke because it could cause choking.

"Previous studies suggest that about 60 percent of people are dehydrated at the time of stroke" said Bahouth. "Perhaps there is opportunity for intervention for this group of patients using simple hydration strategies."

There was little difference in hydration levels across patients' race, gender, ethnicity or diabetes status. Patients with kidney failure were not included in this study. The scientists tracked patients' daily stroke severity based on their NIHSS scores, a measure of patients' neurological health. They also used MRI scans to calculate the volume of brain lesions caused by stroke. Even after researchers factored out the effects of age, initial NIHSS score, lesion volume and blood sugar levels, results still pointed to dehydration negatively impacting the patients' conditions. However, they point out that since there was no intervention in this study, there still may be differences in the types of people who came in dehydrated as opposed to well-hydrated.

"It's not clear why proper hydration at the time of stroke is linked to better stroke outcomes. It's possible that dehydration causes blood to be thicker causing it to flow less easily to the brain through the narrowed or blocked blood vessels. Larger studies will determine whether hydrating [stroke patients](#) may be an inexpensive and accessible intervention to improve outcomes," Bahouth said. "The beauty here lies in the simplicity of this potential treatment. Rehydration is cheap and can be given to people even in the most remote locations."

Provided by American Heart Association

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