

Could arm squeezes with blood pressure cuffs help the brain recover after stroke?

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People who are given clot-busting drugs after a stroke may recover better if they also are given a therapy called remote ischemic postconditioning, according to a new study published in the October 7, 2020, online issue of *Neurology*, the medical journal of the American Academy of Neurology. Remote ischemic conditioning is when blood flow, and the oxygen it carries, is stopped and then restored repeatedly by blood pressure cuffs worn on the arms.

Previous studies have shown that remote ischemic conditioning may activate the body's natural ability to protect against [tissue damage](#), making it more resilient and resistant to changes in [blood flow](#) and the serious damage that can occur as the result of an event like a stroke.

"By restricting and restoring blood flow, it is hypothesized that remote ischemic conditioning activates the body's [defense systems](#), releasing various chemical messengers like antioxidants that help reduce inflammation and tissue damage," said study author Guo-gang Luo, M.D., Ph.D., of the First Affiliated Hospital of Xi'an Jiaotong University in China. "Our study looked at the safety and

efficacy of remote ischemic postconditioning and found that people with stroke who received clot-busting drugs and this [therapy](#) were more likely to have a better recovery than those who just received the clot-busting drugs."

The study involved 68 people with an average age of 65 who were hospitalized after having an [ischemic stroke](#), when blood flow to part of the brain is blocked by a clot. All were treated within four-and-a-half hours after having a stroke with a medication that dissolves blood clots called tissue plasminogen activator (tPA). Half of the participants were randomly chosen to also receive remote ischemic postconditioning therapy.

For the therapy, participants wore blood pressure cuffs on both arms for 40 minutes, with alternating cycles of five minutes of inflation and three minutes of deflation. They received these treatments twice a day during their hospital stay, for an average of 11 days.

Researchers measured [stroke recovery](#) with a scale where a score of zero represents no symptoms, 1 represents no significant disability despite some symptoms, 2 represents slight disability meaning a person is unable to participate in all previous activities and scores of 3 to 5 represent moderate to more severe disability. People who achieved a score of 0 to 1 after three months were considered to have had a favorable recovery.

Researchers found that three months after a stroke, 72% of the people who received the therapy, or 23 of 32 people, had scores representing a favorable recovery, compared to 50%, or 17 of 34 people who did not receive the therapy. After adjusting for age, stroke severity and other factors that could affect recovery, researchers found that people who received the therapy were more likely to have a favorable recovery than those who did not.

"In people who have been given clot-busting drugs for stroke, we found that remote ischemic postconditioning may be a beneficial add-on therapy that may potentially improve their [recovery](#)," said Luo.

There were minimal side effects. Two people receiving the therapy left the study, one due to skin redness from the therapy and another who was uncomfortable with the pressure applied during the procedure.

Luo said, "While our results are promising, it is important that people do not try recreating this therapy at home for a loved one recovering from [stroke](#) because it is still experimental and future studies are needed to confirm that it is safe and effective in much larger groups of people."

Limitations of the study were that the total number of participants was small and various imaging biomarkers, like images comparing the size of the clots, were not included in the analysis.

Provided by American Academy of Neurology

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