

Use of tPA for ischemic stroke nearly doubled from 2003 to 2011

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Use of the "clot-busting" drug tissue plasminogen activator (tPA) to treat patients with strokes caused by a blockage of blood flow nearly doubled between 2003 and 2011. In their paper receiving online release in the journal *Circulation: Cardiovascular Quality and Outcomes*, a team of researchers reports both an overall increase in the use of tPA to dissolve clots blocking arteries supplying the brain and administration of the potentially life-saving drug to a more diverse group of patients.

"Hospitals have put tremendous efforts in the past decade into increasing the number of [patients](#) who can be treated with intravenous tPA, and this paper suggests those efforts are paying off," says corresponding author Lee H. Schwamm, MD, executive vice chair of Neurology and director of Stroke Services at Massachusetts General Hospital (MGH) and professor of Neurology at Harvard Medical School.. "Today, more than three-quarters of [stroke patients](#) who are eligible for IV tPA are getting this treatment at the more than 1,600 U.S. hospitals we studied."

First introduced in 1996, intravenous tPA can be administered to patients with [ischemic strokes](#) – those caused by blockage of [blood supply](#) – if treatment can be started within a few hours of the onset of symptoms. When the drug was first introduced, the outer limit was set at 3 hours, and in 2009 it was extended to 4.5 hours. Appropriate use of tPA can reduce and sometimes even eliminate long-term disability due to a stroke, but the need to administer the drug within even the extended time window requires rapid transportation of patients to [hospital](#) emergency departments and quickly ruling out the possibility that the

stroke is caused by bleeding into the brain, in which case tPA treatment would make it worse.

In 2003 the American Heart Association established Get With the Guidelines – Stroke (GWTG-S), a program designed to help hospitals organize stroke teams, establish best practices for treatment, share information with other member hospitals and measure their performance. The current study analyzed data on the treatment of 1.09 million acute ischemic stroke patients at 1,683 GWTG-S hospitals during the nine-year study period.

Among all patients who were admitted to the participating hospitals for ischemic stroke, usage of tPA increased from 4 percent in 2003 to 7 percent in 2011. In patients who arrived early and were without medical conditions that would prevent safe use of the drug, tPA administration increased from 43 percent to 77 percent. Since the researchers only analyzed data for patients arriving within 2 hours of symptom onset, the increased tPA usage was not due to expansion of the time window.

Study results also indicated more use of tPA to treat patients with less serious stroke symptoms, those aged 80 and over, and for black, Hispanic and other nonwhite patients. "We expect that this expansion happened because, as providers get comfortable using this drug and seeing good patient outcomes, they become more willing to treat all eligible patients and not just those they feel are the 'cream of the crop' for treatment," explains Schwamm, who also serves as the chair of the GWTG-S Clinical Workgroup.. He adds that, while it's possible that hospitals choosing to join GWTG-S might be more likely than others to offer the most advanced stroke treatment, the program has grown to the point where many U.S. patients have access to a GWTG-S hospital.

Despite the expansion in tPA usage revealed by the study, Schwamm stresses, the drug is still underutilized. "We should be providing

intravenous tPA to all eligible patients, which means that nearly a quarter of them are still missing that opportunity. Patients and their loved ones need to recognize the signs of a stroke and get to the hospital quickly by calling 911, and hospitals need to be ready to provide rapid diagnosis and treatment. We hope that our results will encourage more hospitals to join GWTG-S or similar stroke quality improvement programs to help accelerate their use of tPA. When patients learn that their local hospitals are treating [stroke](#) more aggressively, that can translate into more awareness and faster action by the public."

Provided by Massachusetts General Hospital

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