

Earlier treatment following stroke linked with reduced risk of in-hospital death

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In a study that included nearly 60,000 patients with acute ischemic stroke, thrombolytic treatment (to help dissolve a blood clot) that was started more rapidly after symptom onset was associated with reduced in-hospital mortality and intracranial hemorrhage and higher rates of independent walking ability at discharge and discharge to home, according to a study in the June 19 issue of *JAMA*.

"Intravenous (IV) tissue-type plasminogen activator (tPA) is a treatment of proven benefit for select [patients](#) with acute [ischemic stroke](#) as long as 4.5 hours after onset. Available evidence suggests a strong influence of time to therapy on the magnitude of treatment benefit," according to background information in the article. Imaging studies show the volume of irreversibly injured tissue in acute cerebral ischemia expands rapidly over time. "However, modest sample sizes have limited characterization of the extent to which onset to treatment (OTT) time influences outcome; and the generalizability of findings to clinical practice is uncertain."

Jeffrey L. Saver, M.D., of the David Geffen School of Medicine at UCLA, Los Angeles, and colleagues conducted a study to determine the association between time to treatment with intravenous [thrombolysis](#) and outcomes among patients with acute ischemic [stroke](#). The study included data from 58,353 patients with [acute ischemic stroke](#) treated with tPA within 4.5 hours of [symptom onset](#) in 1,395 hospitals participating in the Get With The Guidelines-Stroke Program, April 2003 to March 2012. The median (midpoint) age of the patients was 72 years.

The median OTT time was 144 minutes, 9.3 percent had OTT time of 0 to 90 minutes, 77.2 percent had OTT time of 91 to 180 minutes, and 13.6 percent had OTT time of 181 to 270 minutes. Patient factors most strongly associated with shorter OTT included greater stroke severity, arrival by ambulance and arrival during regular hours. Overall, there were 5,142 (8.8 percent) in-hospital deaths, 2,873 (4.9 percent) patients had intracranial hemorrhage, 19,491 (33.4 percent) patients achieved independent ambulation (walking ability) at hospital [discharge](#), and 22,541 (38.6 percent) patients were discharged to home.

The researchers found that for every 15-minute-faster interval of tPA therapy, mortality was less likely to occur, symptomatic intracranial hemorrhage was less likely to occur, independence in ambulation at discharge was more likely to occur, and discharge to home was more likely to occur. For patients treated in the first 90 minutes, compared with 181-270 minutes after onset, mortality was 26 percent less likely to occur, symptomatic intracranial hemorrhage was 28 percent less likely to occur, independence in ambulation at discharge was 51 percent more likely to occur, and discharge to home was 33 percent more likely to occur.

"These findings support intensive efforts to accelerate patient presentation and to streamline regional and hospital systems of acute stroke care to compress OTT times," the authors conclude.

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