Clot busters limit stroke damage despite age; stroke severity

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Regardless of a patient's age, or severity of stroke, prompt treatment with a clot-busting drug limited stroke-related disability, according to late-breaking science presented at the American Stroke Association's International Stroke Conference 2014.

The clot busting drug, tissue plasminogen activator or tPA is the only approved U.S. FDA treatment for acute stroke caused by a blood clot. However, there is still debate regarding the time window in which it should be given and its use in older patients or those with a minor or severe stroke.

An international collaboration of experts reviewed the records of 6,756 stroke patients participating in nine clinical trials. The experts reported that tPA worked better than placebo and decreased a patient's odds of having long-term disability. Earlier treatment also improved outcomes. Among patients who received the clot buster:

- Within three hours of stroke onset, 33 percent did not experience significant disability after stroke compared with 23 percent of those who did not receive tPA.
- Between 3 and 4.5 hours of stroke, 35 percent did not experience significant disability after stroke compared with 30 percent of the placebo group.
- After 4.5 hours from stroke onset, 33 percent of the tPA group had little disability compared with 31 percent of the placebo group.

"Our results may have implications for treatment guidelines on both sides of the Atlantic," said Jonathan Emberson, Ph.D., study author and senior statistician from the University of Oxford in the United Kingdom. "In the United States, use of tPA is currently limited to treatment within three hours, while in some European countries use is limited to patients aged 80 or younger. The appropriateness of both of these restrictions may be revisited in light of our results."

Prompt recognition of stroke symptoms and speedy treatment are the key to success.

"The problem causing the stroke is often a fresh blood clot, blocking the artery. tPA is a naturally occurring clot-dissolving drug, doing what nature designed it to do, said Kennedy Lees, M.D., joint study author and professor of Cerebrovascular Medicine at the University of Glasgow, United Kingdom. "If we give it early enough, while the clot is still fresh, it is extremely effective. The earlier the treatment is delivered, the bigger the expected benefits."

Those who received tPA in a timely manner were significantly more likely to be free of stroke-related disability three to six months later based on the results of the modified Rankin scale

While the use of tPA was associated with a significant increase in the risk of potentially deadly bleeding in the brain in the initial phase of treatment, by three months after stroke, deaths in the tPA and placebo group were not significantly different.

Each year, about 795,000 Americans experience a new or recurrent stroke. tPA is approved to treat blood-clot related strokes in the United States within three hours of symptom onset. The American Heart Association recommends that tPA may be given up to 4.5 hours for some patients.

"tPA is under-used in older people, especially those aged over 80, so I am delighted these data support the use of tPA in this somewhat neglected patient group," said Peter Sandercock, D.M., joint study author and professor of Neurology at the University of Edinburgh.

Based on these findings, the research team plans to investigate in greater details the effects of tPA, how it may further mitigate against stroke -related disability, and whether it would work in other types of patients.

Provided by American Heart Association