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Telestroke program closes gaps in treatment, increases access to timely stroke remedy

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The use of a life-saving clot-dissolving treatment for patients with acute ischemic stroke increased by 73 percent following the implementation of a Kaiser Permanente telestroke program, according to a study published today in *The Permanente Journal*.

Stroke is a major cause of death and a leading cause of serious long-term disability in the United States. Acute ischemic stroke, the most common type, is caused by a clot obstructing the flow of blood and oxygen to the brain, which can result in the death of brain cells.

Tissue plasminogen activator (or tPA) is the only FDA-approved treatment for acute ischemic stroke; however it is often underutilized because the treatment's success depends on how quickly it can be administered.

The telestroke program allows emergency physicians in hospitals without in-house stroke neurology and neurological intensive care units to activate a neurologist at a remote location, often before the suspected stroke patient arrives via ambulance to the emergency department. Diagnostic images of the patient's brain are available instantly to both the emergency and remote physicians via electronic health record, and the neurologist can assess the patient visually using video technology, all of which shaves precious minutes off the time it takes to determine if the patient is a candidate for tPA. That drug, to be effective, must be administered within 60 minutes of the onset of stroke symptoms, and it is more effective the sooner it is delivered.

"Our findings add to the existing body of evidence supporting the value of telestroke programs for improving tPA administration rates among ischemic stroke patients at hospitals which may have limited resources or access to neurological expertise," explained Adam L. Sharp MD, study lead author, Kaiser Permanente Southern California Department of Research & Evaluation.

Telehealth, which includes the telestroke program covered in this research, helps fill gaps in care through the use of telecommunication technologies to provide long-distance medical information and services. The use of these services has surged recently as technology has improved and health care organizations look to provide specialized services to help meet patient needs.

The study evaluated 2,657 patients at 11 Kaiser Permanente medical centers in Southern California that implemented a telestroke program between August 2013 and December 2014. Prior to program implementation, eight of these centers were significantly less likely to administer tPA to ischemic stroke patients compared to the facility with the largest volume of stroke patients. After telestroke implementation, all facilities were at least as likely to administer tPA as the medical center with the largest volume of stroke patients, with one facility performing even better.

Researchers also found:

- The use of tPA increased from 6.3 percent among acute ischemic stroke patients before telestroke implementation to almost 11 percent after implementation.
- Overall bleeding complications did not rise and were overall slightly lower after telestroke was implemented (5.1 percent versus 4.9 percent).
- Two key quality measures improved: median time for a patient to

receive diagnostic imaging was reduced from 56 to 44 minutes, and the time to tPA administration for those eligible was reduced from 66 to 55 minutes.

Provided by Kaiser Permanente