MedicalXpress

Comprehensive stroke centers may improve bleeding stroke survival

May 6 2015

People with hemorrhagic strokes (brain bleeds) are more likely to survive if they are treated at a comprehensive stroke center, according to research published in the *Journal of the American Heart Association*.

Hemorrhagic strokes, which account for about 13 percent of all strokes, are caused when a weakened blood vessel in the brain ruptures and bleeds in the surrounding brain. Comprehensive stroke centers typically have the specialists and trained personnel to deal with patients with these ruptures or other types of bleeding in the brain. They also can provide neurological intensive care and 24-hour access to neurosurgery. The American Heart Association, in conjunction with the Joint Commission, accredits Comprehensive Stroke Centers that meet standards to treat the most complex stroke cases.

"Clinicians, especially emergency-room physicians, need to be aware of the severity and potential implications of hemorrhagic stroke and try to transfer patients to the hospital most capable of providing the full complement of care. When a person is diagnosed with a hemorrhagic stroke, loved-ones should ask about the possibility of a transfer," said James S. McKinney, M.D., lead author and assistant professor of neurology at the Rutgers-Robert Wood Johnson Medical School in New Brunswick, New Jersey.

Researchers examined the 90-day survival of 36,981 patients with hemorrhagic strokes treated at 87 hospitals in New Jersey between 1996 and 2012. Forty percent of the patients were treated at facilities

designated as comprehensive stroke centers by 2012. The remainder were treated at non-stroke centers or at hospitals designated as primary stroke centers - facilities prepared to quickly identify ischemic strokes caused by blood clots (blocking the blood vessel to the brain) and to deliver clot-dissolving medication, but which may not be prepared for higher level acute neurosurgical emergencies. Mortality rates included deaths from all causes and were adjusted for factors such as age.

Compared to primary care centers or non-stroke centers, the researchers found that treatment at comprehensive stroke centers was associated with:

- a 7 percent reduced risk of death for patients with all hemorrhagic strokes;
- a 27 percent reduced risk of death in patients with subarachnoid hemorrhage, bleeding onto the surface of the brain after rupture of a weakened or ballooning-out vessel (aneurysm);
- no difference in risk of death for patients with intracerebral hemorrhage, a rupture of tiny arteries within brain tissue.

Many patients with hemorrhagic strokes are diagnosed at a primary care centers or non-stroke centers and then transferred to a comprehensive stroke center for more comprehensive care. This practice showed a survival advantage in the New Jersey study, with patients transferred within 24 hours 36 percent less likely to die within 90 days than those who remained in a primary care center or non-stroke center.

"The most severe patients may have been more likely to be taken to a comprehensive stroke center initially, or conversely, sicker patients at other hospitals may have been less likely to be transferred if they were already in a coma and unlikely to survive," McKinney said.

The study is limited by looking back at years prior to the comprehensive

stroke center designation and by the lack of information on the severity of stroke or the neurological condition of the patients.

Provided by American Heart Association