Surgery less than 24 hours after traumatic cervical spinal cord injury leads to improved outcomes

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Researchers at the Rothman Institute at Jefferson have shown that patients who receive surgery less than 24 hours after a traumatic cervical spine injury suffer less neural tissue destruction and improved clinical outcomes. The results of their study, the Surgical Timing in Acute Spinal Cord Injury Study (STASCIS) are available in *PLoS One*.

"This practice-changing study is the first to show that the timing of surgery after traumatic spinal cord injury (SCI) matters," says Alexander Vaccaro, MD, PhD, professor of Orthopaedics and Neurosurgery at Jefferson Medical College of Thomas Jefferson University and attending surgeon at Thomas Jefferson University Hospital, the largest spinal cord injury center in the country.

The multicenter study recruited 313 patients; 182 of whom underwent surgery less than 24 hours after traumatic cervical SCI and 131 of whom underwent surgery at or after 24 hours post-SCI.

For both groups, the degree of neurologic improvement was measured by change in American Spinal Injury Association's (ASIA's) ASIA Impairment Scale (AIS). A two-grade improvement in AIS scores post-surgery was associated with improved neurologic outcomes. Baseline neurological assessments were performed within 24 hours of injury on all subjects.

A total of 222 patients were followed to six months post-surgery.

In the early surgery group (surgery performed less than 24 hours post-injury), 42.7 percent showed no improvement, 36.6 percent had a one grade improvement, 16.8 percent had a two-grade improvement and 3.1 percent had a three grade improvement. Comparatively, in the late surgery group (surgery performed at 24 hours or more post-injury), 50 percent showed no improvement, 40.7 percent had a one grade improvement and 8.8 percent had a two grade improvement.

"What this tells us is that the odds of a significant (at least two grade) improvement in neurologic status is 2.8 times higher when surgery is performed within 24 hours post-injury. This can be the difference between walking and not for the rest of one's life," says Vaccaro.

Complications occurred in 24.2 percent of early surgery patients versus 30.5 percent of late surgery patients.

"Previous research has been inconclusive on the issue, with the common thought among most surgeons that you can wait up to five days post-injury and have the same outcomes. We should not practice that way anymore armed with this new information," says Vaccaro.

Provided by Thomas Jefferson University