

Traumatic spinal cord injuries on the rise in US

27 January 2014

The number of serious traumatic spinal cord injuries is on the rise in the United States, and the leading cause no longer appears to be motor vehicle crashes, but falls, new Johns Hopkins research suggests.

The same research shows, moreover, that rates of these injuries—whose symptoms range from temporary numbness to full-blown paralysis—are rising fastest among older people, suggesting that efforts to prevent falls in the elderly could significantly curb the number of spinal injuries.

"We have demonstrated how costly traumatic [spinal cord](#) injury is and how lethal and disabling it can be among older people," says Shalini Selvarajah, M.D., M.P.H., a postdoctoral surgical research fellow at the Johns Hopkins University School of Medicine and leader of the study published online in the *Journal of Neurotrauma*. "It's an area that is ripe for prevention."

For their study, the Johns Hopkins researchers analyzed a nationally representative sample of 43,137 adults treated in hospital emergency rooms for spinal cord injury in the United States between 2007 and 2009. While the incidence among those aged 18 to 64 ranged from 52.3 per million in 2007 to 49.9 per million in 2009, the incidence per million in those 65 and older increased from 79.4 in 2007 to 87.7 in 2009. Falls were the leading cause of traumatic spinal cord injury over the three-year study period (41.5 percent), followed by [motor vehicle crashes](#) (35.5 percent). Fall-related [spinal cord injuries](#) increased during the study period overall. Among the elderly, they increased from 23.6 percent to 30 percent of injuries.

The average age of adults with a traumatic spinal cord injury in a previous study that covered the years 2000 to 2005 was 41; the new study suggests it is now 51.

The investigators say that even when taking into

account injury severity and other illnesses experienced by the patients, older adults with traumatic spinal cord injury are four times more likely to die in the emergency room from such an injury compared to younger adults. If they survive and are admitted, they are six times more likely to die during their inpatient stay.

While the researchers say they can't pinpoint the exact reason that falls have surpassed car crashes as a cause of traumatic [spinal injuries](#), they believe it may be a combination of the general aging of the population, the more active lifestyles of many Americans over 65, and airbags and seatbelt laws that allow drivers and passengers to survive crashes.

"We are seeing a changing face in the epidemiology of spinal cord injury," says Edward R. Hammond, M.D., Ph.D., a research associate at the International Center for Spinal Cord Injury at Kennedy Krieger Institute and another of the study's leaders.

Beyond the personal toll of disability and death, spinal cord injuries are a growing financial burden on the health care system, the researchers say. They estimate that from 2007 to 2009, emergency room charges alone for traumatic spinal cord injury patients totaled \$1.6 billion. But that is "just the first drop in a long-filling bucket," says Eric B. Schneider, Ph.D., an epidemiologist at the Johns Hopkins University School of Medicine's Center for Surgical Trials and Outcomes Research. Those charges increased by 20 percent over the study period, far more than just the cost of inflation.

The spinal cord injuries captured by the data for this study were those serious enough to land the patient in the [emergency room](#) and included temporary bruising to severed or permanently damaged cords that cause paralysis, difficulty breathing, an inability to fill and empty the bladder and other motor disabilities.

According to the National Spinal Cord Injury Statistical Center, lifetime costs of care for someone with a serious spinal cord injury can range from \$1 million to \$5 million, depending on the age of the person at the time of injury and the severity of the injury. Improvements in rehab care are leading to longer life expectancy among patients with spinal cord injury—and bigger medical bills.

"With so much emphasis on trying to reduce health care costs right now, this is another reason why preventing the injury altogether is so vital," Selvarajah says.

A recent campaign by the National Institutes of Health is funding the search for better ways to prevent falls that lead to [traumatic brain injury](#) in the elderly. Schneider says the effort could also lead to a coincidental reduction in traumatic spinal cord injury.

The spinal cord is a long bundle of nerve tissue that sits inside a bony structure called the vertebral column or backbone. It is the conduit that connects the brain to the rest of the body, enabling nearly all of the latter's functions.

Provided by Johns Hopkins University School of Medicine

APA citation: Traumatic spinal cord injuries on the rise in US (2014, January 27) retrieved 11 October 2022 from <https://medicalxpress.com/news/2014-01-traumatic-spinal-cord-injuries.html>

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