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Medscape Medical News

Seat Belts With Air Bags Reduce Spine Fractures in Car Crashes

Allison Gandey

January 23, 2009 — Combining seat belts with air bags reduces the risk for spine fracture in car crashes, report researchers. The work, which includes data from 20,000 crashes, appears in the February issue of the *Journal of Neurosurgery: Spine.*

"Use of both seat belt and air bag was associated with decreased odds of sustaining a spine fracture, specifically severe fractures or cervical and thoracic fractures," report the investigators, led by Marjorie Wang, MD, from the Medical College of Wisconsin, in Milwaukee.

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"Wang et al have performed a major service to the community," Charles Tator, MD, from Toronto Western Hospital and the University of Toronto, in Ontario, said in an accompanying editorial. Dr. Tator calls this epidemiological study "commendable, extensive, and labor intensive."

Investigators studied the records of crash victims 16 years of age and older admitted to Wisconsin hospitals after car or truck accidents. They used the Crash Outcome Data Evaluation System, a database of the police reports of all motor-vehicle crashes linked to hospital records.

Only 14% of drivers and front-seat occupants who crashed in Wisconsin were protected by the combination of seat belts and air bags.

During an interview with *Medscape Neurology & Neurosurgery*, Dr. Tator said that he was surprised by this number. "It's very shocking. It shows that there is a lot of work to be done to encourage public use of safety measures."

Dr. Wang and her team found that 12.5% of people in car crashes had spine fractures. The risk for fracture was reduced with both seat belt and air bags, but not with either measure alone.

Risk for Spine Fractures According to Use of Seat Belts and Air Bags

Safety Equipment	Unadjusted Odds Ratio	95% CI	*P*
Seat belt	1.09	1.00 – 1.19	0.04
Air bag	1.04	0.86 – 1.26	Not significant
Seat belt and air bag	0.69	0.59 – 0.80	< 0.01

"Most fractures were cervical or lumbosacral, and 8% of patients with a cervical spine fracture also had a thoracic or lumbosacral fracture," the researchers report.

Type of Spine Fractures According to Seat Belt and Air Bag Use

Fracture	No Seat Belt or Air Bag (%)	Seat Belt and Air Bag (%)
None	33	14
Spine (any)	34	10
Cervical	36	8
Thoracic	37	10
Lumbosacral	32	12

The combination of seat belts and air bags provided the best protection against spine fractures, including the most severe fractures, Dr. Wang and her team conclude.

In 2007, there were reportedly more than 6 million motor-vehicle accidents in the United States. Nearly 2.5 million of those accident victims were injured, and more than 41,000 lost their lives.

"Motor-vehicle accidents are the leading cause of spinal cord injury in the United States for people age 65 and younger, and spine fractures are a significant cause of morbidity and mortality," Dr. Wang added in a news release.

"The practicing clinician has to be a preventionist," Dr. Tator said during an interview. "So much of neurology and neurosurgery comes down to prevention. People often refer to car crashes as accidents, but there is no such thing as an accident, and all trauma is preventable," he said, adding, "It is appropriate for neurosurgeons to be at the forefront in trauma scholarship — especially in determining best practices for injury prevention."

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