

High-trauma fractures in older men and women linked to osteoporosis

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Researchers at the California Pacific Medical Center (CPMC) Research Institute are challenging a widely held belief that fractures resulting from major trauma, such as automobile accidents, are not related to osteoporosis, the common disease that makes bones weak and prone to fracture. Their study, published in the November 28 issue of the *Journal of the American Medical Association*, was supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), and the National Institute on Aging (NIA). NIAMS and NIA are components of the National Institutes of Health.

People with osteoporosis, a condition of low bone mineral density, experience fractures from a level of force that would not break a healthy bone. Although clinicians often recognize fractures resulting from minimal trauma as osteoporotic, those related to more substantial injury are rarely given the same consideration.

"We know that too many clinicians pass on any follow-up of many fracture patients because, in their minds, the patient 'earned' their fracture," says Joan A. McGowan, Ph.D., director of the Division of Musculoskeletal Diseases at NIAMS. "These missed opportunities can have a devastating impact on these men and women, who, without proper management, are at increased risk for subsequent fracture."

CPMC's Steven R. Cummings, M.D., and his colleagues analyzed data from two large prospective cohort studies: the Study of Osteoporotic Fractures (SOF) in women and the Osteoporotic Fractures in Men Study

(Mr. OS). The SOF followed 8,022 women for nine years and Mr. OS tracked 5,995 men for five years. Bone mineral density (BMD) was assessed by dual-energy X-ray absorptiometry (DXA). Study participants were contacted every four months to determine whether they experienced a fracture in the previous four-month period.

When a fracture was reported, clinical staff interviewed the participant to learn how it occurred. Without knowledge of the participant's BMD, staff classified each fracture as high-trauma or low-trauma. High-trauma fractures were defined as those caused by motor vehicle crashes and falls from greater than standing height, and low-trauma fractures were defined as those resulting from falls from standing height and less severe trauma.

Cummings and his team discovered that the relationship between BMD and fracture risk was similar for high-trauma and low-trauma fractures. They also found that women who experienced a high-trauma fracture were at increased risk for future fractures. (A similar analysis was not conducted in men because of the shorter follow-up time.) "It is becoming increasingly clear that any fracture experienced by an older individual is worthy of an osteoporosis evaluation," says Sheryl S. Sherman, Ph.D., Geriatrics and Clinical Gerontology Branch, NIA.

"We believe that this study changes the definition of osteoporotic fracture and expands the number of fractures that should be considered as such," Cummings says. "Moreover, it is critical that fractures that occur as a result of high trauma be included as outcomes in future studies, so that we may fully understand the impact of these fractures and develop strategies to prevent them."

Source: NIH/National Institute of Arthritis and Musculoskeletal and Skin Diseases

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