

Heart failure patients' osteoporosis often undiagnosed, untreated

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One in 10 heart failure patients had compression fractures in the spine that could have been detected by a chest X-ray, but few are receiving treatment to help prevent such fractures according to a Canadian study published in the American Heart Association journal *Circulation: Heart Failure*.

Among 623 [heart failure patients](#), researchers found that 12 percent had moderate to severe [vertebral compression fractures](#) and 55 percent of those had multiple [fractures](#). These fractures are a sign of [osteoporosis](#), a condition in which bones become less dense and have a [high risk](#) of breaking. Only 15 percent of the [heart failure](#) patients with spinal fractures were being treated for osteoporosis, despite having a higher risk for fractures.

After adjusting for other risk factors for osteoporosis, heart failure patients who also had atrial fibrillation were twice as likely to have [vertebral fractures](#) as those with normal [heart rhythms](#).

"Osteoporosis is an infrequently recognized and undertreated comorbidity of heart failure," said Kristin J. Lyons, M.D., C.M., lead author of the study and chief medical resident in the Department of Medicine at the University of Alberta in Edmonton, Canada.

"Fortunately, the chest X-ray can be used as a case-finding tool to increase fracture identification."

Physicians' attention to the chest X-ray findings of their heart failure

patients are key, said Justin A. Ezekowitz, M.D., senior author of the study and assistant professor at the Mazankowski Alberta Heart Institute in the University of Alberta in Edmonton. "While reviewing chest X-rays to look at the heart and lungs, physicians also need to look carefully at the bones. If fractures are found, patients need to be treated with dietary modification, exercise and, if indicated, osteoporosis medications. Treatment can reduce future fractures by as much as 50 percent."

Participants in the study were average age 69, 32 percent were 75 years or older and 31 percent were women. Average left ventricular ejection fraction was 32 percent in about half, 38 percent had atrial fibrillation and 65 percent had ischemic cardiomyopathy.

Heart failure patients with spinal fractures were older, more likely to be female, weighed less and more likely to have atrial fibrillation, the researchers found.

"As the population ages, two of the most prevalent diseases are heart disease and osteoporosis," Ezekowitz said. "While hip fractures are the most devastating complication of osteoporosis, vertebral compression fractures are by far the most common.

Unfortunately, 60 percent to 70 percent of spinal fractures are initially asymptomatic, escaping clinical detection yet placing the patients at higher risk for another vertebral fracture and subsequent hip fractures."

Researchers found a higher incidence of fractures than in previous studies because many of the spinal fractures were asymptomatic and undiagnosed, he said.

In the past, treatments for osteoporosis, such as bisphosphonate drugs, have been reported to lead to atrial fibrillation; however, the Canadian

researchers found no association.

The researchers hypothesize that hyperaldosteronism (high levels of the hormone aldosterone) may provide a plausible explanation for the relationship between chronic heart failure, osteoporosis and atrial fibrillation. Aldosterone, a hormone made in the adrenal gland, helps regulate blood pressure, the balance of fluids and electrolytes.

High levels of aldosterone in past studies have been shown to play a role in osteoporosis related fractures and also have led to atrial fibrillation, Ezekowitz said. "Further study is needed, but it could be that treatment with an aldosterone antagonist like spironolactone could lower the incidence of fractures and [atrial fibrillation](#) in these patients."

Further studies also are needed to either confirm or refute a link with hyperaldosteronism, Ezekowitz said.

Limitations of the study include that chest X-rays weren't performed specifically to diagnose spinal fractures and bone mineral density tests were not performed. The study's strengths were the completeness of the description of the patients and that all the chest X-rays were performed at one center where the radiologists were board certified, and the chest X-rays have been evaluated and found to be very specific for [spinal fractures](#).

The researchers are studying whether atrial [fibrillation](#) should be considered as a risk factor for fractures in heart [failure patients](#).

Provided by American Heart Association

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