

Osteoporosis drug may save lives by strengthening immune system

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An osteoporosis drug proven to save lives after hip fractures may do so by strengthening the body's immune system, according to geriatrics researchers at Duke University Medical Center.

In 2007, Duke researchers reported a 28 percent reduction in death among patients who received zoledronic acid (Reclast) within 90 days of surgery for a [hip fracture](#). Zoledronic acid is a yearly intravenous injection of bisphosphonate that inhibits the progression of bone loss. The researchers also reported that the 2,111 people who participated in the study were 35 percent less likely to suffer another fracture.

"The findings marked the first time an osteoporosis medication was shown to have an effect on mortality, but they didn't tell us why the mortality rate was lower," says Cathleen Colon-Emeric, MD, an associate professor of medicine at Duke. "People assumed it was due to a reduction in secondary fractures. We wanted to know if that was the reason or were other conditions being affected by the medication."

In the current study, now online in the [Journal of Bone and Mineral Research](#), Colon-Emeric and her colleagues report that the reduction in additional broken bones accounts for only eight percent of the mortality benefit. "Even after adjusting for secondary fractures and other risk factors, we found the risk of mortality was still 23 percent lower in the zoledronic acid-treated participants. That suggests the drug must work in other ways."

The link between osteoporosis and an increased risk of death has been observed for some time. Up to 25 percent of the 345,000 Americans hospitalized annually with hip fractures die within a year of their fracture. Typically, most patients die from cardiovascular problems like heart attacks, arrhythmias and strokes, infections such as pneumonia, and cancer.

"People who received the drug experienced common complications at the same rate as those who didn't," says Colon-Emeric. But the people in the zoledronic acid group were better able to survive these events. "In particular, people with certain cardiac problems such as arrhythmias and pneumonias were much less likely to die from those conditions."

Patients who lived in a nursing home before their broken hip, or who had high levels of cognitive impairment did not receive a mortality benefit from the drug.

It still remains unclear what role zoledronic acid plays. "We know it affects the immune system and inflammation, and both of those are important in fighting infection and cardiovascular disease," Colon-Emeric says. "It may be that the drug is changing the body's ability to fight off and recover from those illnesses." That idea will require confirmation in new studies.

Source: Duke University Medical Center ([news](#) : [web](#))

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