The deadly news about all osteoporotic fractures

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It is well known that hip and vertebral fractures increase the risk of premature death. Until now, little has been known about the clinical impact of non-hip, non-vertebral fractures – so new Australian research showing that they may also increase the risk of death will better inform treatment.

Non-hip, non-vertebral fractures make up 50% of all osteoporotic fractures, and while they are less severe than hip and vertebral fractures, they are potentially very serious, and should be treated with bone-strengthening drugs to reduce the risk of further fracture.

Associate Professor Jackie Center and Dr Dana Bliuc have examined data from the Dubbo Osteoporosis Epidemiology Study, the world's longest-running large-scale epidemiological study of osteoporotic bone fractures, and have analysed data for different fracture types in various age groups over 60. They have also calculated the associated risk of premature death after the initial fracture for each fracture type, as well as the risk of re-fracture and premature death following the re-fracture. Their results are published in the *Journal of Clinical Endocrinology and Metabolism*.

"The important point we make is that all fractures are serious, some more serious than others, and most have the potential to reduce life expectancy," said Dr Dana Bliuc.

"And although we are using the blanket terms 'hip and vertebral fractures' and 'non-hip, non-vertebral fractures' there is even a sliding scale of severity depending on specific fracture type."

"Hip fractures have much poorer outcomes and higher mortality, for example, than vertebral fractures."

'Proximal fractures', or those close to the body, such as humerus, rib or pelvic fractures, can be as serious as vertebral fractures, and have the potential to shorten life. 'Distal fractures', such as those in the wrist or ankle, do not in themselves shorten life, although they should be taken seriously because they double the risk of re-fracture.

"For people over 75, the risk of having a subsequent fracture is the same, no matter what the initial fracture type. This is important to know, because the second fracture could be a hip or vertebral fracture, even though the initial fracture is not."

"We constructed a 'competing risk model', which looked at the joint risk of subsequent fracture and mortality over time."

"The competing risk model can have 3 outcomes – mortality following the initial fracture, risk of re-fracture, and risk of mortality following re-fracture. When we looked at mortality following the initial fracture, we observed that it is very high for all fracture types for the first 5 years following fracture. It then declines towards the general population mortality risk."

"The same competing risk model showed a compounded risk of mortality following re-fracture. In the 5 years after initial fracture, about another third of people experience a re-fracture. These people again experience excess mortality – and men fare a lot worse than women. For example if a man has another fracture after an initial hip fracture we observed an 80-90% mortality risk."

Endocrinologist Associate Professor Jackie Center believes that most osteoporotic fractures should be treated with drugs to reduce the risk of further fracture. "The majority of doctors know that it is wise to treat hip and vertebral fractures, but many do not take the other fracture types as seriously," she said.

"Fractures impose an enormous health burden, even with minimal hospitalisation, and significantly impair the lives of patients and their families. The faster we act to reduce the risk of re-fracture, the better it will be for everyone."

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