Knowing a patient's history of falls will help doctors predict future fractures

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Knowing a history of falls could help predict future fractures.

Clinicians are being urged to ask about a patient's history of falls as new research shows that the information is valuable in determining their future risk of fracture.

The likelihood of an individual sustaining a fracture is determined by the strength of their bones and the forces applied to them. Bone strength is dependent on bone density: the lower the bone density the higher risk of fracture. However, a bone usually only breaks when it is subjected to trauma, which in the majority of cases results from a fall.

Fracture risk assessment tools, such as the FRAX model, have been developed to allow clinicians to accurately assess the risk of fracture for a patient. The calculation can include information on known risk factors such as age, sex, smoking, alcohol, family history, and certain diseases, with or without bone density. However, not all risk assessment tools include data on whether the individual has previously fallen.

New data from the Hertfordshire Cohort, which is published in the journal *Bone*, have shown that when knowledge of fall history is used the clinician's ability to predict whether an individual will break a bone is further improved.

Dr Mark Edwards, Clinical Research Fellow at the MRC Lifecourse Epidemiology Unit, University of Southampton, who led the study, comments: "In a clinical setting, asking whether a patient has fallen is quick and easy. Nearly 60 per cent of all hospital admissions due to fractures in England are the result of a fall. Fracture prediction is extremely important to allow us to target treatments to those at greatest risk: assessing falls history provides us a further tool with which to do so."

During the study the participants' risk factors, including age, sex, height, weight, family history, smoking, alcohol, rheumatoid arthritis, and whether they had a previous fracture or fall, were assessed along with bone density. At follow up each individual was asked whether they had suffered a new fracture.

The investigators found that using risk factors, similar to those in the FRAX model, showed a good level of fracture prediction. As expected, the addition of bone density further improved accuracy. However, when fall history was also added in, the model was augmented further especially in men in whom predictive capacity increased by six per cent. Furthermore, in over 80 per cent of men that had not fallen and did not

subsequently fracture, the addition of this variable to the model correctly reduced their predicted fracture risk.

Professor Cyrus Cooper, Director of the MRC Lifecourse Epidemiology Unit, University of Southampton, adds: "This research illustrates the importance of well-characterised population cohorts such as the Hertfordshire Cohort Study to clinical decision making. The enhanced fracture risk prediction facilitated through use of our findings will help reduce the ever-growing burden of fractures in the elderly."

Provided by University of Southampton