### Factors Associated with Recurrent Falling Amongst Women with Vertebral Fractures: A Prospective Study

R.O. Morris, E.J. Bassey*, R. Baker and T. Masud

Clinical gerontology research unit, City Hospital, Nottingham and *Nottingham University, UK

**Introduction**

Vertebral osteoporosis subjects have an increased risk of peripheral fractures, particularly if they are recurrent fallers. Identification of those at risk of falls is clinically important so that intervention can be appropriately targeted. The aim of this prospective study was to identify simple clinical tests that can be performed in an outpatient setting, which are associated with recurrent fallers.

**Methods**

Women with at least one vertebral fracture (confirmed by > 25% reduction in vertebral height on lateral radiological imaging) consecutively referred to the bone clinic were studied prospectively. Recurrent fallers were defined as those women who fell at least twice in the year of follow-up. The same clinician performed the following tests at baseline and 12 months later in a standardised manner: Geriatric Depression Score (GDS), Abbreviated Mental Test Score (AMTS), postural sway, ability to rise from a chair with the arms folded, “get up and go test”, tandem walk, time to walk 10 metres, number of steps to turn 180 degrees, leg extensor power and blood pressure drop on standing. Telephone interviews were conducted at intervals to record fall episodes. Demographic details including fall history in the preceding year, age, weight and height were recorded.

**Results**

104 women, mean age 78 ± 7 years, range 63–91 years were studied of which 86 (82.7%) completed follow-up. 18 of 86 (20.9%) reported 2 or more falls during follow-up. Logistic regression analysis showed that a history of recurrent falls in the preceding year (r = 0.30, P = 0.002), the get up and go test (r = 0.27, P = 0.035), the number of steps to turn around (r = 0.23, P = 0.011), timed 10 m walk (r = 0.2, P = 0.019), postural sway (r = 0.15, P = 0.035) and the AMTS (r = –1.16, P = 0.037) were significantly associated with recurrent falls. The get up and go test and a history of recurrent falls in the preceding year remained significantly associated with recurrent falls in multivariate analysis.

**Conclusion**

In conclusion, the “Get up and go test” in combination with a history of recurrent falling may prove useful as simple clinical predictors of recurrent falling amongst elderly women with vertebral osteoporosis.

### One-Year Incidence of Falls and Fractures in a 70 to 77 Year Old Female Cohort

J.A. Thorpe, M. Ackroyd, J. Seabrook and S.A. Steel

Centre for Metabolic Bone Disease, Hull Royal Infirmary and University of Hull

304 women aged 70 to 77 years were assessed for fracture risk by examination and interview, then re-interviewed after a period of one year. Initial examination and interview were performed either at this centre, or at the subject’s local GP surgery. Those who attended at this centre had spine, femur and heel DXA BMD and heel ultrasound BUA and VOS examinations, whilst those attending their local surgery had BUA and VOS measurements. The mobility and cognitive function of all subjects was assessed by functional testing (walking and turning ability) and mini-mental test respectively. Subjects were also questioned regarding previous medical and drug history and social factors thought to influence bone density and fracture risk. They were advised on diet, exercise and lifestyle factors aimed to reduce the incidence of falling and fracture. The interview was repeated (by phone) one year later. At both the initial interview and the re-interview, subjects were specifically asked if they had fallen at any time within the previous year, and if so, how often.

Reported falls were common with 106 subjects (34.9%) reporting at least one fall in the year prior to the initial interview, and 74 subjects (24.3%) reporting a fall in the following year. 23 (7.6%) of these subjects reported falls in both years. 10 fractures occurred between initial interview and subsequent re-interview. 9 of these fractures occurred as a result of a fall, giving an annual incidence of fall-related fracture of 3.0%. In this group the percentage of reported falls that led to fracture was 8.3%. Functional testing was not able to identify those who fell, either previously or over the subsequent year. Spine and femoral neck BMD were associated with previous fracture (P < 0.001 and 0.05, respectively), but only femoral neck BMD was associated with recent fracture (P < 0.001). BUA and VOS were not significantly associated with fracture or falls. Closer questioning over the circumstances of each fall revealed that some subjects were confusing falls they had already reported on their initial visit with falls suffered since. This raises the possibility that subjects over-reported falls at the first interview, and it is therefore not clear if the reduction in falls reported at the second interview was solely due to the advice given.

Falls were comparatively common in this age group, and caused 90% of observed fractures. However, no adequate method of predicting falls and subsequent fracture was demonstrated. Self-reporting of falls may be unreliable, and a more objective method of assessing fall propensity is required.