

# OSTEOSCOOP

News on current events in osteoporosis and rheumatology

## Hip fracture incidence in relation to age, menopausal status, and age at menopause

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**B**one mineral density is known to decrease rapidly after the menopause. There is limited evidence about the separate contributions of a woman's age, menopausal status and age at menopause to the incidence of hip fracture. Over one million middle-aged women joined the UK Million Women Study in 1996–2001 providing information on their menopausal status, age at menopause, and other factors, which was updated, where possible, 3 y later. All women were registered with the UK National Health Service (NHS) and were routinely linked to information on cause-specific admissions to NHS hospitals. 561,609 women who had never used hormone replacement therapy and who provided complete information on menopausal variables (at baseline 25% were pre/perimenopausal and 75% postmenopausal) were followed up for a total of 3.4 million woman-years (an average 6.2 y per woman).

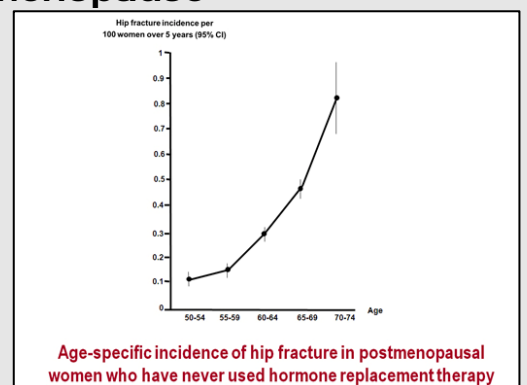
During follow-up, 1,676 (0.3%) were admitted to hospital with a first incident hip fracture. Among women aged 50-54 y the relative risk (RR) of hip fracture was significantly higher in postmenopausal than premenopausal women (adjusted RR 2.22); there were too few premenopausal women aged 55 y and over for valid comparisons. Among postmenopausal women, hip fracture incidence increased steeply with age ( $p < 0.001$ ), with rates being about seven times higher at age 70-74 y than at 50-54 y (incidence rates of 0.82 versus 0.11 per 100 women over 5 y). Among postmenopausal women of a given age there was no significant difference in hip fracture incidence between women whose menopause was due to bilateral oophorectomy compared with a natural menopause (adjusted RR 1.20), and age at menopause had little, if any, effect on hip fracture incidence.

In conclusion, at around the time of the menopause, hip fracture incidence is about twice as high in postmenopausal as in premenopausal women, but this effect is short-lived. Among postmenopausal women, age is by far the main determinant of hip fracture incidence and, for women of a given age, their age at menopause has, at most, a weak additional effect.

1. Banks E, et al. *PLoS Med.* 2009;6:e1000181.doi:10.1371/journal.pmed.1000181.

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