

# Mortality Greater for Hip Fracture Than Breast Cancer in Elderly Women

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May 18, 2007 — Older women are at greater risk for death after hip fracture than after breast cancer, according to a presentation at the American Geriatrics Society (AGS) annual meeting held in Seattle, Washington. The investigators suggest that increased awareness of mortality associated with hip fracture is needed to improve preventive measures.

"This study should raise the general level of awareness of the impact of hip fracture on the lives of elderly women," coauthor Jane A. Cauley, DrPH, a professor of epidemiology at the University of Pittsburgh in Pennsylvania, told Medscape. "There is already a greater general level of awareness of the public health impact of breast cancer, but, in fact, our study showed that the mortality of breast cancer in this population was less than that of hip fracture. The public health impact on mortality was much greater for hip fracture than for breast cancer, even after adjustment."

To test the hypothesis that hip fracture would be associated with worse survival than breast cancer, the investigators compared survival after an incident hip fracture and a diagnosis of invasive breast cancer in a longitudinal cohort of 9704 women enrolled in the Study of Osteoporotic Fractures (SOF). Participants were all aged 65 years or older at enrollment. Mean duration of follow-up was  $12.4 \pm 2.9$  years, and follow-up of the cohort is over 95% complete.

Time from diagnosis to death or last follow-up was calculated by subtracting the time at diagnosis from the total follow-up time, and survival after hip fracture or diagnosis of breast cancer were compared using univariate and multivariate survival analysis. Covariate data available in SOF included demographics, general health, functional status, and cognitive mental status.

During follow-up, there were 457 incident cases of invasive breast cancer confirmed by pathology report, and 803 incident cases of hip fracture confirmed from radiographic reports. Compared with women diagnosed with invasive breast cancer, those with hip fracture were older, with higher levels of education, lower body mass index (BMI), decreased mental status, and less weight change.

After hip fracture, total mortality was 48.1% ( $n = 386$ ) compared with 25.1% ( $n = 94$ ) after diagnosis of breast cancer ( $P < .0001$ ), and survival estimates were significantly different (log rank, 134.63;  $P < .0001$ ). Mortality rates per 1000 person-years were 40.5 for hip fracture, 15.4 for breast cancer, and 27.9 for the remaining cohort. Adjustment for BMI, age, education, mental status, weight change since age 25 years, functional status, self-rated health, and amount of time spent on feet did not abolish this survival difference (likelihood ratio, 226.16;  $P < .0001$ ; hazard ratio, 0.376 (95% confidence interval, 0.295 - 0.480).

The authors concluded that older women are at a greater risk for death after hip fracture than after breast cancer diagnosis, and that increased awareness of mortality associated with hip fracture is needed to promote preventive measures.

"The implications of this study are that we should aim more studies at the correct treatment of the patient with a hip fracture," S. K. Bulstra, MD, a professor of orthopaedic surgery at the University Medical Center Groningen in the Netherlands, told Medscape. Dr. Bulstra was not involved with this study but was asked by Medscape to provide independent commentary.

"Of course it is important to know whether these patients also had more comorbidity than the breast cancer patients," Dr. Bulstra said. "The reduced weight of the hip fracture group suggests a higher frequency of osteoporosis. It is also important to know if patients came from a home situation or a nursing home and how the mental status was assessed, because indeed there is a connection between survival and mental status."

Dr. Bulstra's own research and experience suggest an increased mortality rate for 10 years or more after hip fracture, although the survival rate stabilizes after 2 years. Many patients are no longer able to live at home after hip fracture, which is related to their walking ability both before and after the fracture. Congestive heart failure, renal failure, liver disease, lymphoma, and weight loss each increased the 1-year mortality risk by approximately 2-fold.

"Future studies should compare the effect of hip fracture and of breast cancer on quality of life in this population, in terms of functional disability, pain, mobility, and other outcomes," Dr. Cauley concluded.

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