

Prevention of Hip Fracture in Elderly People with Use of a Hip Protector

Pekka Kannus, Jari Parkkari, Seppo Niemi, Matti Pasanen, Mika Palvanen, Markku Jarvinen, Ilkka Vuori

Abstract

Background. Hip fractures are common in frail elderly adults worldwide. We investigated the effect of an anatomically designed external hip protector on the risk of these age-related fractures.

Methods. We randomly assigned 1801 ambulatory but frail elderly adults (1409 women and 392 men; mean age, 82 years), in a 1:2 ratio, either to a group that wore a hip protector or to a control group. Fractures of the hip and all other fractures were recorded until the end of the first full month after 62 hip fractures had occurred in the control group. The risk of fracture in the two groups was compared, and in the hip-protector group the risk of fracture was also analyzed according to whether the protector had been in use at the time of a fall.

Results. During follow-up, 13 subjects in the hip-protector group had a hip fracture, as compared with 67 subjects in the control group. The respective rates of hip fracture were 21.3 and 46.0 per 1000 person-years (relative hazard in the hip-protector group, 0.4; 95 percent confidence interval, 0.2 to 0.8; $P=0.008$). The risk of pelvic fracture was slightly but not significantly lower in the hip-protector group than in the control group (2 subjects and 12 subjects, respectively, had pelvic fracture) (relative hazard, 0.4; 95 percent confidence interval, 0.1 to 1.8; P greater than or equal to 0.05). The risk of other fractures was similar in the two groups. In the hip-protector group, four subjects had a hip fracture (among 1034 falls) while wearing the protector, and nine subjects had a hip fracture (among 370 falls) while not wearing the protector (relative hazard, 0.2; 95 percent confidence interval, 0.05 to 0.5; $P=0.002$).

Conclusions. The risk of hip fracture can be reduced in frail elderly adults by the use of an anatomically designed external hip protector. (N Engl J Med 2000;343:1506-13.)

Source Information

From the Accident and Trauma Research Center (P.K., S.N., M. Pasanen, M. Palvanen, I.V.) and the Research Center of Sports Medicine (J.P.), President Urho Kaleva Kekkonen Institute for Health Promotion Research; and the Department of Surgery, Tampere University Medical School and University Hospital (M.J.) -- all in Tampere, Finland. Address reprint requests to Dr. Kannus at the President Urho Kaleva Kekkonen Institute for Health Promotion Research, Kaupinpuistonkatu 1, FIN-33500 Tampere, Finland, or at klpeka@uta.fi.