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Half the burden of fragility fractures in the community occur in women without osteoporosis. When is fracture prevention cost-effective?

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Abstract

To determine the age- and BMD-specific burden of fractures in the community and the cost-effectiveness of targeted drug therapy, we studied a demographically well-categorized population with a single main health provider. Of 1224 women over 50 years of age sustaining fractures during 2 years, the distribution of all fractures was 11%, 20%, 33%, and 36% in those aged 50-59, 60-69, 70-79, and 80+ years, respectively. Osteoporosis (T score < -2.5) was present in 20%, 46%, 59%, and 69% in the respective age groups. Based on this sample and census data for the whole country, treating all women over 50 years of age in Australia with a drug that halves fracture risk in osteoporotic women and reduces fractures in those without osteoporosis by 20%, was estimated to prevent 18,000 or 36% of the 50,000 fractures per year at a total cost of \$573 million (AUD). Screening using a bone mineral density of T score of -2.5 as a cutoff, misses 80%, 54%, 41%, and 31% of fractures in women in the respective age groups. An analysis of cost per averted fracture by age group suggests that treating women in the 50- to 59-year age group with osteoporosis alone costs \$156,400 per averted fracture. However, in women aged over 80 years, the cost per averted fracture is \$28,500. We infer that treating all women over 50 years of age is not feasible. Using osteoporosis and age (>60 years) as criteria for intervention reduces the population burden of fractures by 28% and is cost-effective but solutions to the prevention of the remaining 72% of fragility fractures remain unavailable.

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