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Title **Bisphosphonates for the Primary and Secondary Prevention of Osteoporotic Fractures in Postmenopausal Women: A Meta-Analysis**

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Aim

To assess the clinical effectiveness of etidronate, alendronate, and risedronate in the primary and secondary prevention of osteoporotic fractures in postmenopausal women over a followup period of at least one year.

Conclusions and results

None of the bisphosphonates was found to be effective at reducing hip, wrist, or other nonvertebral fractures. Etidronate had a beneficial effect on reducing vertebral fractures only when used for secondary prevention. The data did not support an effect of etidronate on reducing vertebral fractures when used for primary prevention or reductions in nonvertebral, hip, or wrist fractures if used for primary or secondary prevention. Alendronate reduced the risk of vertebral, nonvertebral, hip, and wrist fractures when used for secondary prevention. There were no statistically significant reductions in the primary prevention of osteoporotic fractures by alendronate, with the exception of vertebral fractures. The data for risedronate supported a beneficial effect in reducing the risk of vertebral, nonvertebral, and hip fractures (but not for wrist), when used for secondary prevention. No estimates were possible regarding the use of risedronate in primary prevention.

Recommendations

Not applicable.

Methods

We conducted a systematic review and meta-analysis of randomized controlled trials (RCTs) that compared primary and secondary fractures in women with osteoporosis taking etidronate, alendronate, or risedronate to women receiving placebo.

Further research/reviews required

Whether differences in risk reduction exist across groups of patients with varying degrees of osteoporosis needs further study, as does the impact of bisphosphonates on the RR of nonvertebral fractures in populations without osteoporosis. The role of risedronate in the primary prevention of osteoporotic fractures needs to be clarified. Finally, areas of future research should focus on issues such as whether bisphosphonates reduce nonvertebral fractures in younger women, and if supplemental calcium or combination therapy with other active treatment can significantly increase the effect of these drugs on fractures.

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