**TREATMENT**

### Review: prophylactic use of vitamin D reduces falls in older people


**Q** Is prophylactic use of vitamin D effective for preventing falls in older people?

**CONCLUSION**

Prophylactic use of vitamin D is effective for reducing falls in older people.

A modified version of this abstract appears in *ACP Journal Club*.

**METHODS**

**Data sources:** MEDLINE and the Cochrane Controlled Trials Register (1960 to February 2004), EMBASE/Excerpta Medica (1991 to February 2004), and the American Society for Bone and Mineral Research conference abstracts (1995–2002); bibliographies of relevant studies; and experts in the field.

**Study selection and assessment:** randomised controlled trials (RCTs) that compared prophylactic use of any type of vitamin D with a control condition in community-dwelling or institutionalised older people (mean age of study participants had to be ≥60 y) and included a methods section that stated how falls (the outcome) were defined and ascertained. Individual study quality was assessed using specified criteria that included allocation concealment, blinding, and withdrawals.

**Outcomes:** low-trauma falls defined as unintentionally coming to rest on the ground, floor, or other lower level.

**MAIN RESULTS**

5 RCTs (n = 1237) (mean age 70 y, 81% women) met the selection criteria. Comparisons included cholecalciferol (800 IU/d) plus calcium (1200 mg/d) with calcium (1200 mg/d) (2 RCTs); cholecalciferol (400 IU/d) plus calcium (800–1000 mg/d) from dairy products with placebo (1 RCT); calcitriol (0.5 μg/d) with placebo (1 RCT); and 1α-calcidiol (1 μg/d) with placebo (1 RCT). Meta-analyses using fixed and random effects models showed that fewer participants in the vitamin D group than in the control group had ≥1 fall (table). Furthermore, a sensitivity meta-analysis of the 10 “potentially appropriate for inclusion RCTs” (n = 10 001) showed that fewer participants in the vitamin D group than in the control group had ≥1 fall (relative risk reduction 13%, 95% CI 4 to 20).

**Commentary**

Research on the beneficial effects of vitamin D for reducing falls is based on the hypothesis that human muscle tissue has specific vitamin D receptors that interact with sufficient concentrations of the vitamin to improve muscle strength. The meta-analysis by Bischoff-Ferrari et al concluded that in older people, prophylactic use of vitamin D is effective for reducing the rate of falls.

Wehrt et al conducted a meta-analysis of 9 RCTs (n = 1138) involving older people. The primary outcome was falls, defined as either low- or high-impact falls. The outcomes were ascertained by the study authors. The authors concluded that the prophylactic use of vitamin D reduced falls in older people.

**Participants who had ≥1 fall**

<table>
<thead>
<tr>
<th>Weighted event rates</th>
<th>Outcome (3 mo to 3 y)</th>
<th>Number of RCTs (n)</th>
<th>Vitamin D</th>
<th>Control</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants who had ≥1 fall</td>
<td>5 (1237)</td>
<td>30%</td>
<td>37%</td>
<td>19% (6 to 31)</td>
<td>15 (9 to 52)</td>
<td></td>
</tr>
</tbody>
</table>

*RCTs = randomised controlled trials. Other abbreviations defined in glossary; weighted event rates, RRR, NNT, and CI calculated from data in article using a random-effects model.