Review: evidence from individually randomised trials shows that hip protectors do not reduce hip fractures in elderly people


Do hip pads or protectors worn about the hip reduce the risk of hip fracture in elderly people?

METHODS

Data sources: Cochrane Musculoskeletal Injuries Group trials register (February 2004), Cochrane Central Register of Controlled trials (Issue 1, 2004), Medline (1966 to February 2004), EMBASE/Excerpta Medica (1988 to week 8, 2004), CINAHL (1982 to February 2004); reference lists of relevant articles; and contact with trialists. Ongoing trials were identified in the National Research Register and Current Controlled Trials (both accessed February 2004).

Study selection and assessment: randomised controlled trials (RCTs) or quasi-RCTs that compared hip protectors with no hip protectors for reducing the incidence of hip fracture in elderly people living in the community or in institutional care. Methodological quality of individual studies was assessed based on 10 aspects of methodology (eg, method of randomisation, allocation concealment, and minimum follow up of 12 mo), yielding a maximum score of 12.

Outcomes: hip fractures, pelvic fractures, other fractures, mortality, adherence, and complications.

MAIN RESULTS

14 RCTs (n = 11 018, mean age 78–86 y) met the selection criteria. All trials used protective hip pads placed in the region of the greater trochanter; pads were usually fixed or sewn into special underwear. Most hip protectors had an energy shunting design. Mean methods score was 8 out of 12.

8 trials used individual randomisation (mean methods score 9), and 5 used cluster randomisation (mean methods score 7). Data from cluster RCTs were not pooled with data from individually randomised trials because neither intraclass correlation coefficients nor individual patient data were available.

An uncorrected exploratory analysis of cluster RCTs seems to support the effectiveness of hip protectors for preventing hip fractures (5 trials, n = 4316; 2.7% vs 6.4%, relative risk reduction 60%, 95% CI 45 to 71). However, meta-analysis of 8 individually randomised trials (using a fixed effects model) found no difference between those assigned to use and non-use of hip protectors for hip fractures, pelvic fractures, other fractures, or mortality (table).

13 trials reported on adherence using a variety of measures; estimates ranged from 24–70%. Adverse effects reported primarily related to skin irritation.

CONCLUSIONS

Data from studies using individual randomisation indicate that hip protectors do not reduce hip fractures, pelvic fractures, other fractures, or mortality in elderly people living in residential care or in the community. Exploratory analyses of studies using cluster randomisation suggest that hip protectors may reduce hip fractures.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Number of trials (n)</th>
<th>Hip protectors</th>
<th>No hip protectors</th>
<th>RRI (95% CI)</th>
<th>RRR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip fractures</td>
<td>8 (6561)</td>
<td>3.8%</td>
<td>3.4%</td>
<td>4% (34 to 20)</td>
<td></td>
</tr>
<tr>
<td>Pelvic fractures</td>
<td>7 (6490)</td>
<td>0.8%</td>
<td>0.7%</td>
<td>4% (69 to 46)</td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>5 (5576)</td>
<td>13%</td>
<td>12%</td>
<td>5% (-9 to 18)</td>
<td></td>
</tr>
<tr>
<td>Other fractures</td>
<td>7 (6490)</td>
<td>5.4%</td>
<td>6.8%</td>
<td>15% (-5 to 30)</td>
<td></td>
</tr>
</tbody>
</table>

*Abbreviations defined in glossary; RRI, RRR, and CI calculated from data in article.
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