Fall prevention strategies in nursing care facilities

Ngaire Kerse, Ian Cameron, Geoff Murray, Leslie Gillespie, Clare Robertson, Keith Hill, Robert Cumming
The University of Sydney, Illawarra Area Health Service, Warrawong, La Trobe University, Australia
University of Otago, University of Auckland, NZ

4 million population, 11% over 65 years, 25% of pop over age 85 years in care, 900 aged care facilities

Residential care
- Falls are 3 x the rate of community dwelling older people
- 61% of all residents fall
- Hip fracture 10x rate of community dwellers.

Risk Factors – prospective studies

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>OR/RR</th>
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<tbody>
<tr>
<td>Muscle weakness</td>
<td>(4.4)</td>
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<tr>
<td>Hx Falls</td>
<td>(3.0)</td>
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<tr>
<td>Gait &amp; balance deficit</td>
<td>(2.9)</td>
</tr>
<tr>
<td>Use of assistive devises</td>
<td>(2.6)</td>
</tr>
<tr>
<td>Visual impairment</td>
<td>(2.5)</td>
</tr>
<tr>
<td>Arthritis</td>
<td>(2.4)</td>
</tr>
<tr>
<td>Impaired ADL*</td>
<td>(2.3)</td>
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<tr>
<td>Cognitive impairment</td>
<td>(1.8)</td>
</tr>
<tr>
<td>Age &gt;80 years</td>
<td>(1.7)</td>
</tr>
<tr>
<td>Psychotropics</td>
<td>(1.5)</td>
</tr>
<tr>
<td>Mobility, being able to ambulate*</td>
<td>16 studies, residential care</td>
</tr>
</tbody>
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A Cochrane systematic review and meta analysis - methods

- Hypothesis – Interventions are effective
- Population – residential care (nursing care facilities) and hospitals
- Type - Randomised controlled trials, quasi-rand
- Interventions to reduce falls in older people in nursing care facilities or hospitals
  - Majority >65 years
- Outcomes –raw data - falls, fallers
  - Definition of fall essential

Methods

- Search – Cochrane Bone, Joint and Muscle Trauma Group Specialised Register
- Cochrane Central Register of Controlled Trials (The Cochrane Library 2008, Issue
- MEDLINE, EMBASE, and CINAHL (all to November 2008), trial registers and reference lists of articles

- Abstracts reviewed, articles pulled
- Independent review and quality assessment
  - 2 authors grade and extract data
  - Data pooled where appropriate
  - Statistical analysis complex and yet simple
Classified interventions

- Hospitals – nursing care homes
- Single
  - One major category, given to all
- Multiple
  - Combination delivered to all
- Multifactorial
  - Combination but delivery tied to assessment

- Exercises
- Medication
- Surgery
- Urinary continence management
- Fluid/nutrition
- Psychological
- Environmental/assistive
- Social environ (staff)
- Knowledge

Results

Trials
- 41 trials – 25,442
- 15 cluster RCT
- 30 in nursing care
- 11 hospitals, 1 acute, 6 subacute
- 13 countries
  - UK 10, USA 9, Australia 6
- 21 individual assessment
  - CGA 3, band 1,
    - falls risk 5 (NH) 4 (hosp)
  - Mobility 2, ex cap 3
  - Behav 1 media 1

Participants
- Age 83, 73% female
- Conditions
  - Cognition – 4 trials specifically targeted cognitively impaired
  - Stroke – 1
  - Hip fracture – 1
- NH 20 trials Single
  - 1 multiple
  - 9 multifactorial

Exercises – overall

Participants
- Age 83, 73% female
- Conditions
  - Cognition – 4 trials specifically targeted cognitively impaired
  - Stroke – 1
  - Hip fracture – 1
- NH 20 trials Single
  - 1 multiple
  - 9 multifactorial

Exercises – combination exercise modalities

Participants
- Age 83, 73% female
- Conditions
  - Cognition – 4 trials specifically targeted cognitively impaired
  - Stroke – 1
  - Hip fracture – 1
- NH 20 trials Single
  - 1 multiple
  - 9 multifactorial

Exercises – by type

Participants
- Age 83, 73% female
- Conditions
  - Cognition – 4 trials specifically targeted cognitively impaired
  - Stroke – 1
  - Hip fracture – 1
- NH 20 trials Single
  - 1 multiple
  - 9 multifactorial
Results

Nursing care homes
- Effect of exercise inconsistent
- Multifactorial interventions
  - Team based > nurse led
- Vitamin D effective

Unsuccessful trial - Auckland
- Falls risk assessment
  - Staff strategies
  - High risk logo
  - Education
  - Low intensity
  - No additional resources
- 14 homes
  - 583 residents
  - >2000 falls

Kerse JAGS 2004

Unsuccessful trial – Auckland 2004
- Increased falls
  - 1.34 (1.06-1.72)
  - ?mobility
  - ?staffing
  - ?measurement

Kerse JAGS 2004

Promoting Independence in Residential Care
- Randomisation (no stratification)
- 41 Rest homes in Christchurch and Auckland
- Falls, function, QOL, 682, mean age 87 years.

Social Group
- 2 visits

Activity Group
- PIRC, goal set, functional assessment, PIP to caregiver
  - falls surveillance

Outcome evaluation
- No Impr QOL Function (on average, signif subgroup)
- No increase in falls

Cognition important

Good cognition
- Function
- Depression
- Falls

Poor cognition
- Function
- Depression
- Falls

Understand the population, target the intervention

Kerse BMJ 2008;337:a1445
Falls – rates analysis

- Intervention 1.10 (0.82, 1.46)
- ChCh 1.46 (1.09, 1.96)
- Age 1.02 (1.01, 1.04)
- Female 0.70 (0.53, 0.93)
- Cog Imp 1.42 (1.10, 1.89)
- Depression 1.49 (1.18, 1.89)
- Prior fall 3.00 (2.27, 3.96)
- Time in RH 0.99 (0.99, 1.00)
- Medications 1.04 (1.00, 1.08)
- Hi SES 0.87 (0.68, 1.11)

Which works: exercise alone or multifaceted programme?

- Not enough evidence to disseminate existing strategy from other health system
- No clear picture of single vs multi-intervention

A pilot study
- Staying upright in rest home care
- Tu Pakari – to stand with confidence

Denise Taylor, Liz Binns, Madeline Calder, Clare Robertson

Methods

Randomly selected rest homes Falls surveillance, Risk Factor Data collected on all consented residents

Control Group
- usual care
- Falls surveillance

Multifaceted Intervention
- Champion, falls feedback, hip protectors, environmental check

Sham exercises
- usual care
- Multifaceted intervention

Sham exercises
- usual care
- Multifaceted

Falls after 6 months – 4 homes, 62 residents

Conclusions

- Falls prevention is effective
- Be careful what exactly is delivered
- Be careful with exercise
- Ongoing evaluation needed
  - Do no harm