How Do Community-dwelling Persons With Alzheimer’s Disease Fall? Falls In The FINALEX Study

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CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report
Falls and dementia

- 60% of people with dementia fall annually

- Few studies have investigated falls among participants with dementia
Aim and introduction

• To investigate how community-dwelling persons with Alzheimer’s disease (AD) fall

• FINALEX study was 1-year RCT exercise intervention study among AD patients
  – Home-based/group-based exercise (N=129) 2x/wk
  – Controls: normal community care (N=65)
Methods

• Participants in the FINALEX study:
  – Alzheimer Disease
  – An ability to walk independently with/without mobility aid
  – Sign of frailty:
    • ≥1 fall / previous 12 months OR
    • unintentional weight loss OR
    • slow gait speed
Methods

- Participants’ (N=194) falls were followed up for one year by diaries kept by their spouses.

- Groups formed for participants with 0 (N=103), 1 (N=34) and ≥2 (N=57) falls

- We investigated various features and risk factors behind the falls.
Results: Falls: when, why, consequences

- Altogether 355 falls:

- Half of them at midday, rest equally during morning, evening, and night time

- The most common reasons for falls were stumbling (N=61), dizziness (N=37), and weakness of legs (N=18)

- In most cases, the spouses were unable to state the reason for falling

- Of 355 falls, 123 led to injuries, 50 to emergency department visits, and 13 to fractures
Results: Associated baseline risk factors for falls

<table>
<thead>
<tr>
<th></th>
<th>0 falls N=103</th>
<th>1 fall N=34</th>
<th>≥2 falls N=57</th>
<th>P for linearity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD)</td>
<td>77 (5)</td>
<td>78 (6)</td>
<td>80 (4)</td>
<td>0.003</td>
</tr>
<tr>
<td>MNA, mean (SD)</td>
<td>23 (2)</td>
<td>23 (1)</td>
<td>22 (3)</td>
<td>0.037</td>
</tr>
<tr>
<td>Blood pressure, systolic</td>
<td>153 (24)</td>
<td>154 (28)</td>
<td>143 (27)</td>
<td>0.016</td>
</tr>
<tr>
<td>CDR, n (%)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>0.5-1</td>
<td>44 (43)</td>
<td>12 (35)</td>
<td>10 (18)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>47 (46)</td>
<td>17 (50)</td>
<td>31 (54)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>12 (12)</td>
<td>5 (15)</td>
<td>16 (28)</td>
<td></td>
</tr>
<tr>
<td>FIM total, mean (SD)</td>
<td>92.6 (17.3)</td>
<td>92.0 (14.0)</td>
<td>77.2 (18.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SPPB total, mean (SD)</td>
<td>10.2 (2.1)</td>
<td>9.7 (1.8)</td>
<td>8.7 (2.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vision problem, n (%)</td>
<td>6 (6)</td>
<td>2 (6)</td>
<td>9 (16)</td>
<td>0.042</td>
</tr>
<tr>
<td>Fall history, n (%)</td>
<td>32 (31)</td>
<td>38 (24)</td>
<td>35 (61)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

SD = standard deviation; MNA = Mini Nutritional Assessment; CDR = Clinical Dementia Rating scale; FIM = Functional Independence Measure; SPPB = Short Physical Performance Battery

No significant difference: Intervention, gender, education, BMI, Diastolic blood pressure, Charlson comorbidity index
Results: MMSE / polypharmacy vs. falls

Incidence of falls per person years

A

Mini Mental State Examination score

B

Number of drugs

Falls: Protective and risk factors for falls

A

B

C

Strenghts

• Participants had confirmed diagnosis of Alzheimer’s Disease

• Diary is the best method to accurately record falls

• Prospective and detailed follow-up
Limitations

• The participants were motivated caucasians living at home with their spouses - generalization?

• The number of participants was small

• Intervention reduced the number of falls
  – the number of falls is underestimate of real life
  – modifying falls also?
Conclusions

- Alzheimer’s Disease patients have increased fall risk

- Polypharmacy, anticholinergic drugs, psychotropics, and opioids increase the fall risk – confounding by indication?

- Individuals with MMSE ~10 are at greatest risk
- COPD, diabetes, osteoarthritis increase fall risk

- Good physical functioning protects against falls

- In this study hypertension and antihypertensive medication were protective factors – mechanism?
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Thank you! Merci!