Dementia and poisoning in older people: a 10 year review of hospitalisation records in NSW

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Background

- Older individuals living with dementia increase from 2.8 million in 2012 to 9.4 million by 2050 in Australia (Deloitte Access Economics, 2011)
- Injury a common cause of hospitalisation for people with dementia (AIHW, 2012)
- Poisoning the 3rd most common injury-related hospitalisation for people with dementia
- Two-thirds of 60+ year olds use 4+ medications (Elliot, 2006)
- Difficulty with compliance with prescribed medications
- Confusion with household products

Aim

- To compare the characteristics of poisoning resulting in hospitalisation in older people with and without dementia and their health outcomes in NSW during 2003 to 2012
- To examine the association of poisoning intent and demographic, comorbid and injury event characteristics

Method

- Individuals 50+ years
- Identification of poisoning using principal diagnosis of ICD-10-AM:T36-T60
  - Unintentional (ICD-10-AM: X40-X49); intentional (ICD-10-AM: X60-X69) poisoning
  - n=1,513 undetermined intent (ICD-10-AM: Y10-Y19) not considered
- Identification of dementia using all diagnosis classifications
- Charlson Comorbidity Index (Quan et al 2011)
- 1 year look-back period to 1 Jan 2002
- Identification of mental health diagnoses, depression, delirium, and alcohol abuse and dependence within period of care only

Method: analysis

- Descriptive statistics
- 30-day mortality calculated from date of admission
- 28-day hospital readmission from hospital discharge date
- Hospital LOS age-adjusted and included transfers
- Logistic regression examined univariate associations of poisoning intent and demographic, comorbid and injury event characteristics
- Significant univariate predictors in multi-variable logistic regression
- Denominator data for people with dementia only available for 60+ years (Deloitte Access Economics); NSW population (ABS) – age-adjusted

Results: hospitalisations, 2003-2012

- Unintentional poisoning
  - 6,240 people 50+ years hospitalised
  - 581 (9.3%) had dementia identified
  - Hospitalisation rates 60+ years:
    - 31.6 per 100,000 (95%CI: 30.6-32.6) for people without dementia
    - 69.5 per 100,000 (95%CI: 60.4-78.6) for people with dementia
- Intentional poisoning
  - 10,451 people 50+ years hospitalised
  - 314 (3.0%) had dementia identified
  - Hospitalisation rates 60+ years:
    - 32.5 per 100,000 (95%CI: 31.5-33.5) for people without dementia
    - 56.4 per 100,000 (95%CI: 48.7-66.2) for people with dementia
### Results: hospitalisations, 2003-2012

- **Unintentional poisoning**: 30-day mortality: 5.7% for people with dementia vs 2.1% for people without dementia
- **Intentional poisoning**: 30-day mortality: 1.6% for people with dementia vs 2.3% for people without dementia

### Results: medicinal vs non-medicinal substances

#### Unintentional poisoning

<table>
<thead>
<tr>
<th>Dementia</th>
<th>No dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicinal</td>
<td>20%</td>
</tr>
<tr>
<td>Non-medicinal</td>
<td>10%</td>
</tr>
</tbody>
</table>

#### Intentional poisoning

<table>
<thead>
<tr>
<th>Dementia</th>
<th>No dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicinal</td>
<td>15%</td>
</tr>
<tr>
<td>Non-medicinal</td>
<td>4%</td>
</tr>
</tbody>
</table>

### Results: health outcomes

- **Unintentional poisoning**
  - 30-day mortality: 5.7% for people with dementia vs 2.1% for people without dementia
  - 28-day readmission: 13.8% for people with dementia vs 18.8% for people without dementia
  - Mean age-adjusted LOS: 5.1 days for people with dementia vs 4.2 days for people without dementia

- **Intentional poisoning**
  - 30-day mortality: 1.6% for people with dementia vs 2.3% for people without dementia
  - 28-day readmission: 21.0% for people with dementia vs 23.0% for people without dementia
  - Mean age-adjusted LOS: 12.7 days for people with dementia vs 8.6 days for people without dementia

### Results: associations of poisoning intent

- Unintentional poisoning more likely to involve:
  - males than females (OR: 1.21; 95%CI: 1.13-1.28)
  - older age groups than people aged 50-59 years
  - people with dementia (OR: 3.31; 95%CI: 2.88-3.82)
  - people with multiple comorbidities than no comorbidities
  - people residing in aged care facilities than home (OR: 5.44; 95%CI: 4.34-6.87)
  - people residing in health service facilities than home (OR: 4.56; 95%CI: 4.06-5.33)
Limitations

- Severity of cognitive impairment
- Quantity or number of substances ingested
- Only health conditions relevant to hospital episode reported
- Possible under-enumeration of dementia
- Determination of intent
- Living arrangements e.g. lived alone
- No information on deaths prior to hospitalisation
- Linkage: false positive rate 0.4% and false negative rate 0.5%

Conclusion

- Older individuals with dementia higher hospitalisation rates for both unintentional and intentional poisoning (population-based study)
- Dementia – increase potential for error & adherence problems
- Ability to comply with complex drug regimen
- Home – most common location; aged care and health facilities
- Medication storage options, carer involvement; quality use of medication
- Poisoning - most common method of self-harm for people with dementia
- Monitor for mood disturbances, increased aggression, hallucinations, expressions of self-harm

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