Acute hospital care: how much activity is attributable to caring for patients with dementia?

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Summary

Background: People with dementia are among the most frequent service users in the acute hospital. Despite this, the acute hospital is not organized in a manner that best addresses their needs.

Methods: We examined acute dementia care over a 3-year period from 2010 to 2012 in a 600-bed university hospital, to clarify the service activity and costs attributable to acute dementia care.

Results: Nine hundred and twenty-nine patients with dementia were admitted during the study period, accounting for 1433/69 718 (2%) of all inpatient episodes, comprising 44 449/454 169 (10%) of total bed days. The average length of stay was 31.0 days in the dementia group and 14.1 days in those >65 years without dementia. The average hospital care cost was almost three times more (€13 832) per patient with dementia, compared with (€5404) non-dementia patients, accounting for 5% (almost €20 000 000) of the total hospital casemix budget for the period.

Discussion: Service activity attributable to dementia care in the acute hospital is considerable. Moreover, given the fact that a significant minority of cognitive impairment goes unrecognized after acute admissions, it is likely that this is under-representative of the full impact of dementia in acute care. Although the money currently being spent on acute dementia care is considerable, it is being used to provide a service that does not meet its user needs adequately. It is clear that acute hospitals need to provide a more ‘dementia friendly’ service for acutely unwell older persons.

Introduction

People with dementia, with reduced cognitive and functional reserve, are among the most frequent service users in the acute hospital.¹ More than 40% of older people admitted via the emergency department (ED)² are cognitively impaired, while a point prevalence study showed almost 35% of patients above 80 years in the acute hospital had delirium.³ Given the projected increase in the prevalence of dementia, these figures are likely to increase significantly in the near future.⁴

This vulnerable cohort is more medically complex with more significant medical comorbidities.⁵ Rates of delirium are considerably higher in acutely unwell patients with dementia⁶ and delirium superimposed on dementia is associated with poorer outcomes than delirium alone.⁷ Also, patients with dementia are more likely to suffer adverse events during admissions,⁸ as well as having an increased risk of falls and functional decline.⁹

The challenges of comprehensively assessing patients with dementia are well recognized.¹⁰ The direct history may not be...
consistent or accurate, dictating a need for an informant history. Additionally physical examination may not be possible, especially in the context of delirium or advanced dementia. These challenges are magnified, however, by issues such as the inappropriate physical environment or the lack of training of staff in dementia-specific care.12

Despite this, the acute hospital is not organized in a manner that best addresses this degree of complexity. Most cognitively impaired patients are admitted via the ED, where there is often no expertise in geriatric medicine or multidisciplinary team involvement at point of contact. Admission to hospital, while often essential, can initiate a cascade of events characterized by inadequate assessment and adverse events and culminate in functional decline and increased frailty.12

The Irish National Audit of Dementia has highlighted several deficiencies in the care of people with dementia in the acute setting, with no dementia care pathway in place in almost 50% of acute hospitals, while only 21% of hospitals had a training setting, with no dementia care pathway in place in almost 90%, despite insufficient community supportive care,14 mean that patients with dementia admitted to our acute hospitals have higher rates of mortality and institutionalization, as well as longer lengths of stay (LOS).15 With this as a backdrop, we aimed to examine acute dementia care over a 3-year period, to clarify the service activity attributable to acute care of patients with dementia, as well as the outcomes after acute admission and the cost of acute care of patients with dementia.

Methods

Using the Irish hospital inpatient enquiry portal (HIPE)16 that codes diagnoses using ICD 10, we conducted a review of hospital activity specific to dementia from 2010 to 2012, and compared it with non-dementia groups, specifically comparing outcomes in patients above 65 years with dementia to those without. The codes used for dementia were ‘dementia in Alzheimer’s disease’, ‘Vascular dementia’, ‘dementia in other diseases classified elsewhere’ and ‘unspecified dementia’.

We looked at patient demographics, presenting diagnoses and outcomes, including LOS, between the two groups. Additionally we examined the cost of acute dementia care, using the hospital casemix system that allocates funding for patient care based on case complexity.17 We compared patients with dementia to all patients without a coded diagnosis of dementia, and then specifically to patients aged 65 and older who had no coded diagnosis of dementia.

The study site is a 600-bed university teaching hospital that caters to most medical and surgical specialties and is a national trauma centre. The ED is amongst the busiest in Ireland with almost 44 000 attendances in 2012, 8095 (19%) of which were aged 65 years and older.

Results

Demographics

There were 69 718 hospital admissions during the study period. Of this, 929 patients were coded with a diagnosis of dementia, accounting for 1433/69 718 (2%) of all inpatient episodes over that time. Thirty percent (282/929) of the patients with dementia presented at least twice during the study period.

These 1433 admissions accounted for 44 449/454 169 (10%) of total bed days. See Table 1. From 2010 to 2012 there was a 21% increase (from 425 to 517 admissions) in the number of inpatient episodes coded with dementia. The average age in the dementia group was 80.0 years, compared with 39.4 years in the non-dementia group.

Presenting features

The average LOS was 31.0 days in the dementia group compared with 14.1 days in those above 65 years without dementia. The increase in the number of admissions coded as dementia from 2010 to 2012 was accompanied by a small increase in the number of bed days attributable to dementia care (13 232 days in 2010, 13 855 days in 2012) due to a reduction in the average LOS from 31.13 to 26.8 days.

The most common presenting diagnoses are shown in Table 2. The most common presenting diagnosis was pneumonia/lower respiratory tract infection, comprising 17% (246/1433) of total admissions of patients with dementia, followed by stroke (114/1433, 8%) and urinary tract infection (87/1433, 6%). LOS was consistently longer for patients with dementia than for those without.

During the study period, there were 1501 patient episodes aged 65 years and older coded with a primary diagnosis of pneumonia. The 246 patients with dementia (average age 82 years) had an average LOS of 25.6 days compared with their non-demented (average age 76.3 years) counterparts’ average LOS of 14.1 days in dementia episodes and 14.9 days in non-dementia episodes.

Table 1 Number of admissions and bed days attributable to patients with dementia, 2010–12 (2021 projected)

<table>
<thead>
<tr>
<th>Year</th>
<th>Admissions dementia, n</th>
<th>Admissions non-dementia, &gt;65 years, n</th>
<th>Average LOSa dementia (days)</th>
<th>Total bed days</th>
<th>Bed days used dementia</th>
<th>% of total bed days dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>425</td>
<td>5097</td>
<td>32.1</td>
<td>167 335</td>
<td>13 232/167 335</td>
<td>7.9</td>
</tr>
<tr>
<td>2011</td>
<td>491</td>
<td>5345</td>
<td>36.6</td>
<td>172 780</td>
<td>17 362/172 780</td>
<td>10.0</td>
</tr>
<tr>
<td>2012</td>
<td>517</td>
<td>5472</td>
<td>26.8</td>
<td>157 687</td>
<td>13 855/157 687</td>
<td>8.8</td>
</tr>
</tbody>
</table>

*LOS, length of stay.
11.2 days. When patients with dementia who died in hospital (26%) or were discharged to a nursing home (34%) were excluded, the average LOS was 15.2 days for patients discharged to their own home, 4 days longer than their non-demented counterparts. In total, 26.2% (6300 days) of the total bed days attributable to the treatment of pneumonia involved care of a patient with dementia.

**Costing**

The average hospital care cost (casemix cost) was almost three times more (€13 832) per patient with dementia compared with (€5404) non-dementia patients. The costs attributable to patients with dementia accounted for 5% (almost €20 000 000) of the total hospital casemix budget for the period (Table 3).

**Discussion**

This study demonstrates the significant share of overall hospital activity attributable to care of patients with dementia, comprising 10% of total bed days and 5% of the total hospital casemix budget during the study period. Also, reflective of the increasing prevalence of dementia in acute care, there was a 21% increase in the number of admissions of patients with dementia between 2010 and 2012.

There are several possible reasons for this. First, the prevalence of dementia in the community is increasing on the background of an ageing population and it follows then that greater numbers of patients with dementia will be admitted to hospital. Additionally, while the prevalence of dementia has increased considerably, this has not been matched by a parallel enhancement in community services and supports for persons with cognitive impairment. Although it is clear that patients with dementia will often require hospital admission and access to acute services when unwell, enhancing community-based services with access to specialist geriatric assessment may help prevent avoidable admissions, reducing the risk of complications such as delirium. The reduction in LOS for patients with dementia across our study is likely due to the increased provision of nursing home beds in the catchment area during the 3 years studied, highlighting the importance of integrated community and acute hospital care pathways.

As suggested by the higher comparable costs demonstrated in our study, the care of the patient with dementia is challenging. For common presenting diagnoses such as infections or stroke, patients with dementia had significantly longer LOS and worse outcomes compared with non-demented patients above 65 years. Although it must be noted that the average age of the patients with dementia was higher than those without, it is unlikely that this difference is simply due to age alone and complexity of care must be considered. For example, in the case of pneumonia in patients with dementia, the presence of oropharyngeal dysphagia and associated feeding problems, as well as the increased risk of delirium, can make management more challenging. This complexity undoubtedly contributes to the poorer outcomes demonstrated in our study.

Moreover, given the fact that a significant minority of cognitive impairment goes unrecognized after acute admissions, it is likely that this data is under-representative of the true impact of dementia in acute care. We captured only patients HIPE coded for dementia, which means they received a formal diagnosis. Not included in this data is the substantial proportion of patients who attend the hospital with unspecified cognitive impairment or dementia, and are frequently discharged without formal assessment or diagnosis. Previous studies have demonstrated a prevalence of dementia of 40% in acutely unwell older people. If we apply this to our data, it would suggest that nearly 7000 admitted patients were cognitively impaired, but only 21% (1433/6939) of these were captured and recorded as such during the study period.

With this in mind, a rapid, sensitive cognitive screening tool should be used for all older patients admitted to hospital to identify any cognitive deficits. Although no single instrument is perfect for this task, it is the prioritization of cognitive assessment as an issue that needs to be addressed at first point of contact that matters most. A significant minority of older patients pass through their medical admission with unrecognized cognitive impairment. A cognitive assessment should form part of standard care in all acutely unwell older adults; in much the same way as one would listen to their heart sounds or auscultate their lungs. Specific care pathways for identification and management of delirium are an essential aspect of acute care and should be mandatory in all acute hospitals.

The acute hospital can be a potentially deleterious environment for patients with dementia, and it is well recognized that admission to hospital can precede cognitive decline in older people. The move towards provision of a more ‘dementia friendly’ service for acutely unwell older persons, rather than the non-specialist care currently provided would be a welcome one. This would involve significant environmental and organizational changes, however, including improvements to specific competencies and training. While general training in the care of persons with dementia for all healthcare workers in the acute hospital is essential, a strong case can be made for a dementia-specific service to cater for this cohort, although as yet limited research on such services has not demonstrated an impact on LOS or mortality in hospital. These services have been associated with better care processes and better patient experience however. Any such service would need to use the multidisciplinary model involving old-age psychiatrists, geriatricians, specialist nurses and allied health professionals.

Our study demonstrates that the money currently being spent on acute dementia care is considerable but, as recent audits in UK and Ireland have demonstrated, it is being used to

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Table 3 Percentage of total hospital bed days and total hospital casemix budget attributable to care of patients with dementia from 2010 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Total hospital bed days</th>
<th>HIPE coded dementia bed days</th>
<th>% bed days dementia</th>
<th>Total casemix budget</th>
<th>Casemix cost dementia care</th>
<th>% casemix budget dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>167,335</td>
<td>13,232/167,335</td>
<td>7.9</td>
<td>€128,886,330</td>
<td>€5,974,015</td>
<td>4.6</td>
</tr>
<tr>
<td>2011</td>
<td>172,780</td>
<td>17,362/172,780</td>
<td>10.0</td>
<td>€133,675,223</td>
<td>€7,660,645</td>
<td>5.7</td>
</tr>
<tr>
<td>2012</td>
<td>157,687</td>
<td>13,855/157,687</td>
<td>8.8</td>
<td>€128,755,296</td>
<td>€6,148,238</td>
<td>4.8</td>
</tr>
</tbody>
</table>

*HIPE, hospital inpatient enquiry.*
provide a service that often does not meet its user's needs adequately. With the imminent increase in activity attributable to patients with dementia, it is now time to rethink dementia care processes and pathways in the acute hospital, as well as community services for this cohort.

Conflict of interest: None declared.

References


