A 12-month follow-up study of people with dementia referred to general hospital liaison psychiatry services

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Abstract

Background: new services for patients with dementia in general hospitals are being widely developed. Little is known of outcomes after hospital for such patients.

Objective: to establish outcomes for patients with dementia referred to general hospital psychiatric services.

Design: prospective cohort study.

Setting: two UK general hospitals.

Subjects: referrals with dementia to liaison psychiatric services.

Method: eligible referrals (n = 112), and their carers, were assessed during admission, and at 6 and 12 months, using battery of health measurements.

Results: mortality at 6 months was 31% and at 12 months 40%. At baseline, 13% lived in a care home, rising to 84% by 6 months. Quality of life scores remained stable over 12 months, while carer stress fell significantly. Baseline clinical and demographic variables did not predict quality of life or carer stress at 6 and 12 months.

Conclusions: dementia liaison services in general hospitals currently focus on poor outcome cases.

Keywords: dementia, hospital, outcomes, older people

Introduction

Mental health problems are found in a majority of older medical inpatients [1]. In this setting, dementia is highly prevalent [2], frequently undiagnosed [3, 4] and associated with negative outcomes, including longer hospital stays [2, 5–7], poorer functional outcomes [8–10], higher rates of institutionalisation [8, 10] and higher mortality [4, 7, 11]. To address this need, services may involve joint medical/psychiatric inpatient units, with specific staff training in dementia care. Such services have reported positive outcomes in open studies of outcomes [12], and are amenable to rigorous trials of effectiveness [13]. Another common model is a liaison service specialising in assessment and management of people with dementia in general hospitals. Such arrangements, at least in the UK, have led to a patchwork of services of variable quality [14]. Recent reports of reduced costs from assertive liaison management of dementia in general hospital is leading to a new wave of such services in UK general hospitals [15]. Little is known about longer term outcomes for patients referred to liaison psychiatric services. We aimed to (i) establish outcomes among people with dementia/their carers after referral to general hospital liaison psychiatry services (ii) establish predictors of patient quality of life and carer stress.

Methods

We recruited people with dementia (with or without additional delirium) from referrals to specialist general hospital liaison
psychiatric services for older people in two general hospitals in central England, UK. One hospital has 1,080 beds and a large multidisciplinary liaison team. The other has 149 beds, a focus on rehabilitation and one dedicated liaison psychiatric nurse. Liaison referrals from November 2008 to February 2010 were screened for eligibility and were considered for inclusion if they: (i) met DSM-IV criteria for probable dementia [16], (ii) were aged 65 years or over, (iii) were not on an end-of-life care pathway and (iv) had a carer (proxy) able to provide data. All patients and carers were interviewed during the index general hospital admission and again after 6 and 12 months.

Assessments

Quality of life—The Alzheimer’s disease-related Quality of Life scale (QoL-AD) [17] is a 13-item scale suitable for use across the range of severity of dementia [18]. Over half (55%) of participants were unable to complete this measure, so the proxy (carer) version was used for all participants.

Carer stress—the General Health Questionnaire (GHQ-12) [19] (GHQ-12, Goldberg and Williams 1988) is a widely used self-rated instrument for the detection of significant psychological morbidity.


Physical illness—using the Burvill scale [21], a validated measure of acute and chronic conditions across multiple systems, designed for use in psychiatric populations.

Stage of dementia—The Clinical Dementia Rating scale (CDR) [22] uses caregiver reports to classify patients into questionable, mild, moderate and severe dementia.

We collected standardised data on patient and carer demographics, details of hospital admission and care arrangements.

Statistical analysis

Results were summarised and presented for baseline, 6 and 12 month time points. We constructed linear regression models to establish independent baseline predictors of Proxy QoL-AD and GHQ-12 at 6 and 12 months. For Proxy-QoL-AD, these independent variables were (at baseline) the CDR level of dementia, GHQ-12, Burvill physical health scores, age and gender. For GHQ-12, a similar model was constructed to establish baseline predictors of outcomes at 6 and 12 months (including the CDR level of dementia, Burvill score, gender of carer and age of carer).

Sample size

Using 80% power and 5% significance level, in order to detect a 4-point difference on the QoL-AD scale between care home and own home patients, we aimed to recruit 125 participants and carers in the study (allowing for a predicted 25% withdrawal and dropout rate).

Results

Recruitment

A total of 892 referrals were screened for eligibility. The most common reason for ineligibility was diagnosis other than dementia (including delirium without dementia, depressive disorder or no psychiatric disorder). Of the 256 eligible patients, 112 (44%) consented to the study. Reasons for loss of eligible patients included rapid discharge of patient (64/256, 25%), carer refusal (56/256, 22%) and patient refusal (11/250, 4%).

Mortality and residential situation

Of 112 at baseline, 7 (6%) died before discharge from hospital. At 6-month follow-up, 12 were unavailable for full assessment (6 refusing and 6 being uncontactable), and 31% of traced patients (33/106) had died. By 12 months, 38% (40/106) had died; 60 were interviewed. Most patients entered a care home after the general hospital admission. At baseline, 14/112 (13%) of the sample already lived in a care home; by 6 months this had risen to 56/67 (84%) and by 12 months 51/60 (85%). Of those living in their own homes prior to hospital admission (n = 61), 50 (82%) had entered a care home by 6 months, whereas 11 (18%) returned home.

Characteristics of the sample

Table 1 shows patient and carer characteristics for the final sample at baseline, 6 and 12 months. The commonest recorded admission diagnosis was falls (42/112, 38%). Patients in the first (n = 97) and second (n = 15) hospitals did not differ on age, gender, dementia severity, physical illness or carer stress. Most patients had moderate-to-severe dementia and most carers were a child of the patient, many themselves retired at baseline, 66% of those living at home still lived alone.

Outcomes

Proxy-QoL-AD scores showed significantly impaired quality of life, and scores remained stable over the follow-up period (Table 1). Carer psychological symptoms (GHQ-12) showed scores in the clinically important range at baseline. Significant reduction in GHQ-12 scores occurred from baseline to 12 months (mean difference 3.98, SD: 5.51, t = 5.60, df: 59, P = 0.000). Table 2 shows the results of regression analyses establishing baseline predictors of 6- and 12-month outcomes. For proxy QoL-AD, only baseline quality of life...
predicted 6- and 12-month scores, with no effect of age, gender, carer GHQ-12, physical health (Burvill score) and stage of dementia. Similarly, for GHQ-12, only baseline GHQ-12 predicted 6- and 12-month scores.

**Discussion**

For those patients with dementia referred to a general hospital liaison team, we showed high mortality and very high rates of care home admission, whereas carer psychological symptoms declined significantly. This is likely to reflect reduced stress levels following admission of patients into care homes.

Patients are referred to a hospital liaison service for many reasons; for example, for diagnosis, capacity assessment or medication advice. Many are referred to affect the discharge process—in speed and quality. Recruiting patients in a fast-moving hospital environment was challenging. We were unable to gather data on the 56% of patients not recruited, many of whom were discharged rapidly; therefore, those recruited may tend to have more severe dementia, and greater problems in arranging discharge. This is supported by the preponderance of moderate to severe dementia in our sample, by the long index admissions, by the low mortality during the index admission compared with other studies [4],

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**Table 1.** Baseline and follow-up characteristics of patients and carers

<table>
<thead>
<tr>
<th>Variable (at baseline)</th>
<th>Baseline, ( n = 112 )</th>
<th>6 months, ( n = 67 )</th>
<th>12 months, ( n = 60 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender female (%)</td>
<td>85.0 (76)</td>
<td>51 (76)</td>
<td>37 (62)</td>
</tr>
<tr>
<td>Age in years (SD)</td>
<td>85.3 (65.9)</td>
<td>86.0 (76.5)</td>
<td>86.5 (6.2)</td>
</tr>
<tr>
<td>Care home resident (%)</td>
<td>14 (13)</td>
<td>56 (84)</td>
<td>51 (85)</td>
</tr>
<tr>
<td>Length of index admission in days (SD)</td>
<td>47.4 (29.8) ( n = 111 )</td>
<td>46.3 (28.9) ( n = 66 )</td>
<td>47.2 (29.9) ( n = 59 )</td>
</tr>
<tr>
<td>CDR stage mild (%)</td>
<td>16 (15) ( n = 109 )</td>
<td>4 (6) ( n = 66 )</td>
<td>4 (7) ( n = 59 )</td>
</tr>
<tr>
<td>CDR stage moderate (%)</td>
<td>64 (59) ( n = 109 )</td>
<td>31 (47) ( n = 66 )</td>
<td>24 (41) ( n = 59 )</td>
</tr>
<tr>
<td>CDR stage severe (%)</td>
<td>29 (27) ( n = 109 )</td>
<td>31 (47) ( n = 66 )</td>
<td>31 (53) ( n = 59 )</td>
</tr>
<tr>
<td>Proxy QoL-AD (SD)</td>
<td>24.5 (54.8) ( n = 109 )</td>
<td>24.7 (54.7) ( n = 66 )</td>
<td>24.3 (5.3) ( n = 59 )</td>
</tr>
<tr>
<td>I-ADL (SD)</td>
<td>1.6 (1.7) ( n = 110 )</td>
<td>0.4 (0.9)</td>
<td>0.4 (0.9)</td>
</tr>
<tr>
<td>Burvill total illnesses (SD)</td>
<td>2.6 (1.7) ( n = 108 )</td>
<td>2.5 (1.7) ( n = 59 )</td>
<td>2.7 (1.7) ( n = 59 )</td>
</tr>
<tr>
<td>Carers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender female (%)</td>
<td>52 (47)</td>
<td>29 (43)</td>
<td>25 (42)</td>
</tr>
<tr>
<td>Age in years (SD)</td>
<td>62.0 (11.9)</td>
<td>61.5 (11.4)</td>
<td>61.2 (11.6)</td>
</tr>
<tr>
<td>Carer retired (%)</td>
<td>48 (43)</td>
<td>27 (40)</td>
<td>24 (40)</td>
</tr>
<tr>
<td>Carer child of patient (%)</td>
<td>67 (60)</td>
<td>45 (67)</td>
<td>40 (67)</td>
</tr>
<tr>
<td>GHQ-12 (SD)</td>
<td>15.7 (6.2) ( n = 110 )</td>
<td>12.3 (6.2)</td>
<td>11.6 (5.6)</td>
</tr>
</tbody>
</table>

Numbers in italics indicate how many provided data: if different from full numbers (baseline 112, 6-month follow-up 67, 12’ follow-up 60): SD, standard deviation; higher scores on GHQ-12 indicate more symptoms, on I-ADL more independence, and on QoL-AD higher quality of life.

**Table 2.** Linear regression analyses showing baseline predictors of Proxy QoL-AD and GHQ-12 at 6 and 12 months

<table>
<thead>
<tr>
<th>Variable (at baseline)</th>
<th>6 months ( n = 66 )</th>
<th>12 months ( n = 59 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>15.96 (6.85, 25.08)*</td>
<td>23.91 (13.09, 34.73)***</td>
</tr>
<tr>
<td>Gender of patient (female versus. male)</td>
<td>−0.22 (−2.47, 2.03)</td>
<td>0.97 (−1.86, 3.80)</td>
</tr>
<tr>
<td>Age of patient</td>
<td>−0.01 (−0.10, 0.09)</td>
<td>−0.11 (−0.22, 0.01)</td>
</tr>
<tr>
<td>CDR (mild versus. severe)</td>
<td>−1.07 (−4.45, 2.51)</td>
<td>−2.15 (−6.50, 12.20)</td>
</tr>
<tr>
<td>CDR (moderate versus. severe)</td>
<td>0.56 (−1.83, 2.95)</td>
<td>1.40 (−1.69, 4.49)</td>
</tr>
<tr>
<td>GHQ-12</td>
<td>−0.11 (−0.29, 0.08)</td>
<td>−0.17 (−0.40, 0.06)</td>
</tr>
<tr>
<td>Proxy QoL-AD</td>
<td>0.46 (0.24, 0.69)**</td>
<td>0.39 (0.12, 0.65)*</td>
</tr>
<tr>
<td>Burvill</td>
<td>−0.16 (−0.86, 0.54)</td>
<td>−0.28 (−1.14, 0.58)</td>
</tr>
</tbody>
</table>

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Numbers in italics indicate total numbers in analyses; CI, confidence intervals; P, significance level.

*0.01 > P value < 0.05

**0.01 ≥ P value ≥ 0.001.

***P value < 0.001.
and the high rate of new institutionalisation after the index hospital stay.

Other limitations include: the possibility that our hospitals were atypical (though admission reasons appeared similar to that reported in another UK general hospital unsellected dementia sample [23]), and that we used two hospitals to boost recruitment, though patient characteristics were similar.

At least one previous study [11] demonstrated high mortality when patients with dementia were followed to 6 months after discharge from a general hospital. Our very high institutionalisation rates reflect a population among whom resource use is very high. Care needs increase with severity among people with dementia, among whom the largest driver of costs is care home admission [24], projected to account for up to 1.0% of UK gross domestic product by 2031 [25]. The outcomes in our sample suggest cases with the highest needs were recruited. One previous study suggests that geriatric liaison psychiatry can increase discharges home and reduce psychiatric morbidity, but the greatest effect was with patients with non-dementia presentations including anxiety, depression and delirium [26]. Focusing on screening early in admissions, and away from more severe dementia, may be most effective.

**Key points**

- Patients with dementia referred to liaison psychiatric services have very high mortality and institutionalisation rates.
- For survivors, carer stress levels fall by 12 months.
- Geriatric liaison psychiatric services may currently focus on cases with poor outcomes.

**Conflicts of interest**

None declared.

**Ethical considerations**

The study was approved by the local research ethics committee. All the patients either provided informed consent to participate, or consultee agreement to participate was obtained from a close family carer. Carers also provided informed consent for their own data.

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**References**

N. Agahi et al.


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Trajectories of social activities from middle age to old age and late-life disability: a 36-year follow-up

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Abstract

Objectives: to examine the association between 34-year trajectories of social activity, from middle age to old age and late-life disability.
Methods: data from the Swedish Level of Living Survey (LNU) and the Swedish Panel Study of the Oldest Old (SWEOLD) were used. LNU data from 1968, 1981, 1991 and 2000 were merged with SWEOLD data from 1992, 2002 and 2004 to create a longitudinal data set with five observation periods. Trajectories of social activities covered 1968–2002, and late-life disability was measured in 2004. The sample consisted of 729 individuals aged 33–61 at baseline (1968), who participated in at least four observation periods and who were free from mobility limitations at baseline. Four trajectories of social activity were identified and used as predictors of late-life disability.
Results: reporting low/medium levels of social activity from mid-life to old age was the most common trajectory group. Persons reporting continuously low/medium or decreasing levels of social activity had higher odds ratios for late-life disability (OR = 2.33 and OR = 2.15, respectively) compared with those having continuously high levels of activity, even when adjusting for age, sex and mobility limitations, and excluding persons with baseline mobility limitations.
Conclusions: results suggest that the disability risk associated with social activities is related to recent levels of activity, but also that risk may accumulate over time, as indicated by the higher disability risk associated with the continuously low/medium level social activity trajectory.

Keywords: social activity, trajectories, disability, ageing, mid-life, older people