The Benefits of Psychiatric Hospitalization for Older Nursing Home Residents

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OBJECTIVE: To examine the demographic characteristics and treatment outcomes of nursing home residents admitted to a geropsychiatric inpatient unit.

DESIGN: A retrospective cohort design based on an ongoing data base effort.

SETTING: The geropsychiatric inpatient unit of the Houston Veterans Affairs Medical Center Hospital.

PARTICIPANTS: All admissions to the unit from nursing homes during an 18-month period.

MEASUREMENTS: Mini-Mental State Examination, Brief Psychiatric Rating Scale, Hamilton Rating Scale for Depression, Cohen-Mansfield Agitation Inventory, Rating Scale for Side Effects, and Global Assessment of Functioning were administered on admission and discharge.

RESULTS: Paired *t* tests comparing change scores revealed significant decreases in general psychiatric symptoms ($P < .001$), depression ($P < .001$), and agitation ($P < .001$); significant improvement in global functioning ($P < .001$); with no significant changes in cognitive status ($P = .485$) or side effects ($P = .120$). When the patients were subgrouped according to reasons for admission, paired *t* tests revealed decreases in violence (CMAI Factor 1; $P = .000$), psychosis (BPRS thought disorder scale; $P = .000$ and hostility subscale; $P < .008$), and depression (HAM-D; $P = .002$). Four patients were discharged to less restrictive environments, all with chronic mental illnesses.

CONCLUSION: Inpatient psychiatric hospitalization significantly benefits nursing home residents with and without dementia who are admitted for severe behavior problems. J Am Geriatr Soc 44:1062–1065, 1996.

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In the United States, one-half million older adults currently reside in nursing homes, a number which will continue to increase with the shift in age demographics. Several studies have shown a high prevalence of psychiatric disorders among nursing home residents.[1-5] Dementia, sleep disorders, adjustment disorders, schizophrenia, anxiety, and depression are common problems in nursing homes, as are behavioral disturbances such as agitation and social withdrawal.[6] Nursing homes may address behavioral disturbances with behavioral therapy, psychotropic medications, restraining/protective devices, emotional support of patients and their families, and regular care planning meetings by the staff members. However, poor access to outpatient geropsychiatric services, staff shortages, and inadequate nursing home design may impede the use or success of such treatment measures[2] such that psychiatric hospitalization often ensues. A computer-assisted MEDLINE literature search conducted for the years 1965 to 1995 revealed that some studies have investigated the hospitalization of nursing home residents referred for psychiatric problems. Konings et al. in the Netherlands studied the characteristics and presenting complaints of nursing home residents admitted to a hospital's medical and psychiatric units and the purpose of their admissions. They found that patients were hospitalized twice as often for medical problems as for psychiatric reasons, with men hospitalized about 1.25 times more often than women.[7] In a retrospective study using a national data set, Murtaugh and Friedman identified older nursing home residents at high risk of hospitalization, along with the reasons for and outcomes of residents' hospital stays. A very low rate of hospitalization for mental disorders was found, but persons with both dementia and some other mental disorder were significantly more likely to be hospitalized than residents with either alone.[8] As ADL dependence increased, so did the risk of hospitalization. Kerr and Byrd, investigating the process and outcomes of nursing home residents transferred by ambulance to a VA Medical Center, found that behavioral problems accounted for 10% of all emergency department visits and 14% of the admissions resulting from nursing home transfers.[9]

In summary, it appears that nursing home residents are less likely to be admitted to hospitals for psychiatric problems than for medical problems, but gender, severity of cognitive impairment, and behavioral disruption are factors associated with psychiatric admission. Most of the limited research in this area is retrospective, with little use of standardized psychiatric instruments to assess emotional problems. No studies in the United States have specifically investigated admissions

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of nursing home residents to inpatient geropsychiatric units. This study will examine the demographics and treatment outcomes of nursing home residents admitted to the geropsychiatric unit of the Houston VA Medical Center Hospital.

METHODS

All admissions between November 1993 and May 1995 were reviewed to identify those patients who were admitted to the geropsychiatry unit from a nursing home. Only the first admission during this period of data collection was included in the analysis because reasons for readmissions were often the same as the reason for initial admission, and analyses including readmissions revealed no differences in demographics and outcomes. All patients admitted to the geropsychiatry unit received a comprehensive evaluation by a multidisciplinary team that included two geriatric psychiatrists, a geropsychologist, psychiatric nurses, a social worker, and a physician assistant. In addition, on admission and just before discharge, the severity of cognitive impairment and behavioral symptoms were rated with well validated standardized instruments: (1) the Mini-Mental State Examination (MMSE) has been shown to be a valid and reliable measure of cognitive impairment; (2) the Hamilton Depression Rating Scale (HAM-D) assessed severity of depressive symptoms and has been shown to be a valid measure of depression in cognitively impaired older people; (3) the Brief Psychiatric Rating Scale (BPRS) evaluated common acute psychiatric symptoms; (4) the Cohen-Mansfield Agitation Inventory (CMAI) assessed level of agitation; (5) the Rating Scale for Side Effects (RSSE) assessed side effects from medications; and (6) the Global Assessment of Functioning rated overall current psychiatric status.[10-15] Inter-rater reliability as measured by intraclass correlation coefficients was greater than 0.9 for the MMSE, HAM-D, and RSSE; 0.76 for the CMAI; and 0.60 for the BPRS. Axis I and Axis II psychiatric diagnoses by DSM-III-R[15] (and later DSM-IV) criteria were established within 2 weeks of discharge at a consensus conference attended by the two geriatric psychiatrists, the geropsychologist, and other members of the research team. Medical problems causing disability or actively being treated were summed and documented on Axis III as an indicator of medical burden. Reasons for admission were grouped into five categories, with some patients assigned to more than one category. The five categories were violent behavior, psychosis, depression, sexual inappropriateness, and other behaviors.

All patients received multidisciplinary treatment, including pharmacotherapy, individual, family, and group therapies. Comparison of total rating scale scores on admission and before discharge were made using two-tailed paired *t* tests. Scores on individual item or factor scales related to violent behavior (CMAI aggression subscale), psychosis (BPRS thought disturbance and hostility-suspiciousness subscales), depression (total HAM-D), and sexual inappropriateness (CMAI items #27 and #28) were compared on admission and before discharge using two-tailed paired *t* tests. Pearson correlations were calculated between both (1) length of stay (LOS) and (2) medical burden variables and the change scores for total and subscale scores. Because of the potential bias inherent in multiple *t* test analysis, the critical value was adjusted using the Bonferoni technique to 0.02.

RESULTS

Of 301 consecutive admissions during the 21 months reviewed, 53 (18%) involved 43 patients admitted from nursing homes. Three patients were admitted 3 times, and four patients were admitted twice. Two of these readmitted patients were diagnosed with bipolar disorder, two with chronic schizophrenia, two with dementia, and one with traumatic brain injury. Of the 43 total patients admitted from nursing homes, two were excluded from the analysis because of incomplete data. The mean age of the remaining 41 patients was 70.6 ± 6.1 years. All of the subjects in this study were male; 80% were white, 15% were black, and the remaining 5% were Hispanic. Sixty-three percent had a high school education or beyond (19% finished high school, 19% had some college, 19% completed college, and 6% had education beyond college). Thirty-seven (90%) of the subjects were admitted to the hospital from an intermediate care facility, and four (10%) came from a skilled care facility. The primary Axis I diagnoses are listed in Table 1. The principal diagnoses were dementia (46%) and mood disorder (27%). Sixteen (39%) of the subjects also had a secondary Axis I diagnosis, and 10 (24%) had more than two additional Axis I diagnoses. Twenty-two patients (54%) were admitted because of violent behavior, nine patients (22%) had a diagnosis of depression and eight patients (18%) psychosis, four patients (10%) showed sexual inappropriate behavior, and three patients (7%) were admitted with other behaviors (i.e., deteriorating cognition, increasing mania, and delirium). The average number of medical diagnoses treated was 3.6 ± 2.6, and the average length of stay for the subjects was 37.8 ± 15.5 days. No significant correlation was found between length of stay or medical burden and pre-to-post improvement on any of the scales.

Paired *t* tests revealed significant decreases in total BPRS, HAM-D, and CMAI scores for all subjects from admission to discharge, as well as for subgroups of dementia and nondementia patients, indicating decreased levels of general psychiatric symptoms, depression, and agitation, respectively. Paired *t* tests for GAF scores also revealed significant pre-to-post increases, reflecting subjects' improvement in their global functioning. A comparison of admission and discharge scores for the MMSE and RSSE revealed no significant cognitive status changes or medication side effect increases during hospitalization (Table 2). When the pre-to-post changes of the subgroups of demented and nondemented patients were analyzed, all the results remained significant except that the BPRS for nondemented patients reflected only a trend

Table 1. Primary Axis I Diagnosis of Consecutive Admissions to a Geropsychiatric Unit

Primary Axis-I Diagnosis	Number of Patients
Dementia	19
Mood Disorder	11
Schizophrenia	06
Substance Related Disorder	04
Personality Change due to Head Injury	01
Total	41

Table 2. *t* Test Between Admission and Discharge MMSE, HAM-D, BPRS, CMAI, RSSE, and GAF Scores

Paired *t* Tests	Demented (n = 19) Mean ± S.D.	Nondemented (n = 22) Mean ± S.D.	Total (41) Mean ± S.D.
MMSE			
Admission	13.7 ± 8.3	23.1 ± 7.1	18.7 ± 9.1
Discharge	16.1 ± 8.1	22.5 ± 9.2	19.3 ± 9.1
P	.089	.520	.485
HAM-D			
Admission	14.2 ± 8.1	10.8 ± 8.1	12.4 ± 8.2
Discharge	7.9 ± 5.6	6.9 ± 4.3	7.4 ± 4.9
P	.001	.016	<.001
BPRS			
Admission	44.1 ± 14.3	34.8 ± 9.6	39.3 ± 12.9
Discharge	29.4 ± 9.7	29.1 ± 7.2	29.2 ± 8.4
P	<.001	.027	<.001
CMAI			
Admission	65.6 ± 33.6	45.4 ± 10.0	55.2 ± 26.3
Discharge	39.5 ± 7.9	39.2 ± 7.4	39.3 ± 7.6
P	.003	.003	<.001
RSSE			
Admission	7.7 ± 9.4	7.0 ± 6.8	7.3 ± 8.0
Discharge	5.7 ± 6.6	6.0 ± 5.2	5.9 ± 5.8
P	.155	.465	.120
GAF			
Admission	20.8 ± 9.1	33.6 ± 9.8	27.3 ± 11.4
Discharge	32.3 ± 11.9	44.5 ± 11.4	38.5 ± 13.1
P	<.001	<.001	<.001

MMSE = Mini-Mental State Exam; HAM-D = Hamilton Depression Rating Scale; BPRS = Brief Psychiatric Rating Scale; CMAI = Cohen-Mansfield Agitation Inventory; RSSE = Rating Scale for Side Effects; GAF = Global Assessment of Functioning.

toward improvement ($P = .027$). When the patients were subgrouped according to reasons for admission, paired *t* tests revealed improvements in violence (CMAI Factor 1, $P < .001$); psychosis (BPRS thought disorder subscale, $P < .001$; and hostility subscale, $P = .008$); and depression (HAM-D, $P = .002$). There were no significant changes for the subgroup of patients with sexual inappropriate behavior.

Of the 41 nursing home admissions to the geropsychiatric unit, 33 (80%) returned to a nursing home upon discharge, two (5%) were discharged to a personal care home, two (5%) were discharged home with some type of supervision, one (3%) required long-term hospitalization, and three (7%) were transferred to a medical unit. Of the 19 patients with a primary diagnosis of dementia, 17 (90%) returned to a nursing home, one (5%) was discharged home without supervision and one (5%) transferred to a medical unit. Of the 22 patients without a primary diagnosis of dementia, 16 (72%) returned to a nursing home, one (5%) was discharged home, two (9%) were discharged to a personal care home, two (9%) were transferred to a medical unit, and one (5%) required long-term hospitalization. The four patients (10%) discharged to a less restrictive environment all had chronic psychiatric illnesses (one of these patients had a primary dementia diagnosis).

Between-group comparisons of change scores using *t* tests comparing patients having a diagnosis of dementia with patients with other psychiatric diagnoses on admission and discharge revealed that only the CMAI was statistically significant ($P < .001$), with demented patients showing greater decreases in agitation. No statistically significant difference in changes comparing the two groups were observed on the HAM-D, MMSE, BPRS, GAF, or RRSE.

DISCUSSION

This is the first study to describe the characteristics and outcomes of nursing home residents who are admitted to a geropsychiatric inpatient unit. We found that in general, the overall psychiatric functioning and problem behaviors of nursing home residents with and without dementia improve in the hospital. This improvement occurs without worsening of either medication side effects or cognitive functioning. Surprisingly, 10% of the patients admitted from nursing homes were able to be discharged to less restrictive settings than those from which they were admitted. This study has some limitations that may decrease its generalizability. First, the study population was all male and generally of low socioeconomic status (SES), yet nursing home residents are overwhelmingly female and span a wide variety of SES categories. Second, the modest sample size did not allow statistical analysis of the relationships between discharge site, psychiatric diagnosis, race, education, types of medical problems, and pre-to-post changes in test scores. Third, the multimodal treatment approach made it impossible to identify the specific therapeutic ingredients responsible for measured improvement. Fourth, the average 37-day stay is longer than most current health insurance companies allow. We do not know whether similar improvements would occur if rigid lengths of stay requirements were placed on all patients. Fifth, we also do not know whether these patients maintain their improvements after discharge.

Provision of adequate psychiatric care to geriatric nursing home residents is a subject of growing importance. The present study shows that four patients, all with chronic psychiatric disorders, admitted to a geropsychiatric unit from a nursing home improved enough to be discharged to a less restrictive environment, suggesting that some mentally ill nursing home residents may function at a much higher level with proper treatment. Even those with a primary diagnosis of dementia improved. One explanation for nursing home patients' improvement in the hospital may be the lack of adequate psychiatric assessment and treatment in the nursing home. When nursing homes lack psychiatric expertise and consultation, an inpatient setting transfer may become the only avenue of intervention. However, psychiatric hospitalizations, despite their necessity, have limitations of high cost, short lengths of stay, risk of nosocomial infections, and the inherent difficulty of treating a behavioral problem outside the nursing home milieu. The questions of whether a psychiatric inpatient setting is the most efficacious and cost-effective delivery site for treatment of nursing home residents, and whether psychiatric care can be provided efficiently within nursing homes, were not addressed in this paper but deserve further attention. Other issues worthy of additional research in this population are early identification of psychiatrically impaired nursing home residents who may require less restrictive care with proper treatment, causes of multiple psychiatric readmissions from nursing homes, more precise delineation of variables associated with improved mental status of nursing home residents with dementia, and follow-up of

nursing home residents after psychiatric interventions. Given the current level of concern about health care reform, it is important to continue to study the psychiatric assessment and treatment of nursing home residents so that the ever growing nursing home population can receive the appropriate, cost-effective care they deserve.

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