

Patient Outcomes In Hospital-Based Respite: A Study Of Potential Risks And Benefits

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Abstract: Background: Primary care physicians provide increasing care for elderly patients with chronic disabilities. To maintain these individuals in the community, families and other caregivers are supplying more intensive support in the home. Services, such as short-term respite care, can relieve the caregiver burden and allow the patient to continue community living. Whether hospital-based respite can be an effective option for patients is unclear.

Methods: To determine the patient outcomes in hospital-based respite, 15 elderly male respite patients (mean age 71 years) were matched and compared during a 6-month period with 14 elderly acute care control patients and 16 community-based elderly control patients who were chronically ill and were enrolled in a hospital-based home-care program.

Results: The average respite stay was 15 days. The respite group did not experience increased risk of mortality or iatrogenesis. Benefits at 6 months included fewer admissions for acute medical care for the respite group ($P < 0.05$). Total number of hospital days was equivalent for the respite group and community-based control patients and was fewer than that for the acute care group.

Conclusion: The results do not indicate any harm and argue that a slight benefit is associated with hospital-based respite for chronically ill older adults. Because of potential complications that can develop for chronically ill geriatric patients, a hospital setting for respite can be a viable respite alternative. A valid concern for physicians, however, remains the potential danger of a greater rate of iatrogenic illness and expectation of more aggressive care based on a tertiary care model. (J Am Board Fam Pract 1992; 5:475-81.)

As the number of elderly persons increases in the United States, primary care physicians, including those in family practice, will care for an increasing number of patients who have dementia and other chronic disabilities. Part of the challenge of providing high-quality, continuing care for these patients includes attention to the stresses of the family and caregivers.

Currently 4.8 million of the 6.6 million older adults who require long-term care receive this care in the community from their families.¹ Given the traditional pattern of families taking primary

caregiving responsibility for their elderly relatives, the need for additional help will increase as the number of older adults increases. With the growing bulge of adults older than 85 years, who have a much higher number of chronic conditions and disabilities, the burden on family caregivers will expand as they are expected to provide more intensive care. It also follows that the care given during respite stays will increase in intensity and complexity. Several reviews have suggested respite services as an option to provide relief for community-based families who are the primary caregivers of their chronically ill or demented elderly relatives.²⁻⁴ Respite might also prevent hospitalization and lower health care costs.²

Respite services have varied in duration and location. Community-based respite primarily consists of home-based respite in which outside caregivers provide temporary in-home care, usually for 2 weeks or less,³ and day-care-based respite in which elderly relatives attend a community

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program for a few hours during the day. Institution-based respite models have used both nursing home⁵ and hospital settings.^{6,7} Research has primarily focused on community-based and nursing-home-based respite. Although reviews have been published in which some evidence has been found that respite produces benefits for caregivers and their families, far less attention has been paid to the impact that respite has on the geriatric patients' well-being, especially hospital-based respite.

The few studies that have focused on hospital-based respite show mixed impact on patients.⁶⁻⁸ The generalizability from these findings remains a problem because of patient selection or the lack of controlled experimental designs.

This article specifically addresses the paucity of data on hospital-based respite and provides a formal case-controlled prospective evaluation of the impact of short-term hospital-based respite on a heterogeneous group of geriatric individuals with chronic conditions.

In developing the evaluation strategy, appropriate comparison groups must be established. Given the unique nature of hospital-based respite, two comparisons are needed to gauge effectively the impact of acute care respite. First, respite clients are compared with other patients who share the acute care environment, that is, other patients admitted to the hospital. Findings from this comparison help inform whether a respite patient is at greater risk for acute illness and iatrogenic illness than is an acutely ill patient in a hospital setting. Second, respite clients are compared with other chronically ill elderly individuals who reside in the community. Findings from this comparison help inform whether exposure to an institutional environment and relocation from a community-based setting places hospital-based respite clients at greater risk than community-based elderly individuals.

If, as some of the literature suggests, respite in acute care settings is problematic, then we would expect that hospital-based respite clients would show poorer outcomes compared with acute care patients (who share the acute care environment but not necessarily the frailty typical of the respite patient). In addition, hospital-based respite clients would show significantly poorer outcomes compared with community control patients (who share the frailty of acute care respite patients but

not the relocation trauma and exposure to an acute care medical environment). If, on the other hand, the hospital-based respite patients showed outcomes equal to or better than control patients, then the data would argue for the viability of hospital-based respite.

Methods

Subjects

Respite patients consisted of all ($n = 15$) patients (100 percent men) admitted to the Geriatric Unit at the Buffalo Veterans Administration Medical Center (VAMC) from October 1986 to June 1987 for respite.

The respite patients were enrolled in the standard VA respite program made available to all veterans eligible for hospital services. Each veteran and his or her family are allowed up to 4 weeks of respite per year. The length of individual respite admissions varies depending upon specific needs of the caregivers. Respite care in the Buffalo VAMC is typical of the care given at other VAMCs across the nation; it primarily consists of custodial care and does not include specialized rehabilitation or diagnostic work-ups. Intercurrent illness is routinely treated. Seriously ill patients are transferred to the University House Staff Service. The respite beds are located adjacent to the geriatric evaluation and rehabilitation unit. Custodial care is provided by the general medical service.

In keeping with the matched control group design, for every respite patient, an elderly patient receiving community-based care and a patient from the acute care geriatric service were matched according to the criteria described below to create the two control groups. The geriatric service control group consisted of acute care patients referred to the Division of Geriatrics. These patients were elderly persons with a variety of medical problems who were regularly seen in geriatric outpatient clinics, but because of an acute episode they required hospitalization. The community-based control group consisted of hospital-based home-care patients who never received respite care (HBHC group). The HBHC program provides home visits by members of an interdisciplinary team when increased support is needed to make it possible for families to care for patients at home. HBHC patients are usually chronically ill, frail patients who often

have been selected from a geriatric clinic or acute care population.

Procedures

Every respite patient who was admitted to the hospital for respite care was interviewed within 48 hours by a trained nurse interviewer who assessed mental status, functional status, and severity of illness. Informed consent was obtained from all patients or their caregivers. All respite patients were observed and monitored during the course of their hospitalization and reevaluated within 48 hours of discharge. At 3 and 6 months after discharge from the hospital, the respite patients' medical records were reviewed. Telephone contact was made with the patients or their families to collect data that were missing from the charts. At those times, data on functional status, rehospitalization, nursing home admission, or mortality were collected. The medical records from the two matched control patient groups were reviewed for the same period.

Logic of Matching

The logic of the patient matching is to create meaningful and reasonable control groups whose outcomes serve as benchmarks in defining maladaptive outcomes, such as excessive hospitalization or institutionalization rates, increased mortality, or incidence of iatrogenesis, that may occur in acute care respite patients. Consequently, it is important that patient characteristics, which could affect the outcomes measured (i.e., hospitalization and institutionalization rates, mortality, and incidence of iatrogenesis), are equivalent across the groups. In that way, the study's design would control for these potentially confounding variables. Patients were matched by age, functional status, and severity of illness. Functional status was determined by the objective measurement of the patients' activities of daily living (ADL) using the Katz, et al. ADL score.⁹ Matching was performed by categorization into independent, assist, and dependent functional status. Mental status was examined by the Mental Status Questionnaire¹⁰ (scoring ranges from 0 to 10) with matching by normal or mild impairment, moderate impairment, and severe impairment.

The severity of illness obviously can be a powerful confounding variable. At the very least it would be necessary to show that patients in the

respite group and the control groups were, in fact, equivalent in the severity of their illnesses. Reviews of the literature produced no generally accepted measure of illness.¹¹ While some researchers use single global measures of illness or count the number of chronic conditions, a more promising direction is suggested by the work of Knaus, et al.¹² on acute physiology and chronic health evaluation (APACHE) measures. The primary use of APACHE is to predict mortality in intensive care patients, and a solid core of literature on the scale's reliability and validity as a measure of illness severity has emerged,¹³ including the shorter and equally valid simplified APACHE score.¹⁴ The simplified APACHE technique yields acute physiology and chronic health evaluation subscores. The chronic health evaluation measure is similar to other severity of illness measures used with geriatric patients. The acute physiology measure offers the potential of matching by acute condition. The severity of illness was calculated using the simplified APACHE score taken during the first 48 hours of admission.

The acute physiology portion of the simplified APACHE yields a numerical score determined by age, vital signs, and laboratory results (blood urea nitrogen, hematocrit, glucose, potassium, sodium, and bicarbonate levels). Acute geriatric service control group patients were matched to the respite patients on their mortality potential (low, medium, high) using a simplified acute physiology score by LeGall, et al.¹⁴

The four-category-based chronic health evaluation portion of the APACHE score was used to match HBHC control group patients with respite patients, because laboratory values were not available for community-based patients.

Thus for each respite patient a profile was generated consisting of functional status, mental status, acute physiology subscore, chronic health evaluation subscore, and age. At the same time, using existing medical records, an acute geriatric service control patient and HBHC control patient were then selected who completely matched the profile of the respite patient. The demographic profiles and severity of illness measures of the patients are presented in Table 1.

Outcome Measures

Mortality rates, acute hospitalization rates, nursing home admissions, and total number of hospi-

Table 1. Patient Profiles in Respite Group, Acute Geriatric Medicine Control Group, and Hospital-Based Home-Care (HBHC) Control Group.

Characteristic	Respite*	HBHC	Acute Geriatric Service
	(n = 15)	(n = 16)	(n = 14)
	Mean ±SD	Mean ±SD	Mean ±SD
Mean age (years)	70 ± 7	75 ± 11	73.5 ± 10
Mean years direct care provided	9 ± 7	5 ± 5	16 ± 21
Mean hours direct care provided per week	109 ± 57	103 ± 62	86 ± 80
Simplified acute physiology APACHE score†	4.5 ± 1.9	NA	5.5 ± 2.2
Simplified chronic health APACHE score‡	3.1 ± 1.2	4.1 ± 2.0	2.8 ± 0.8
ADL score§	5.1 ± 1.8	4.0 ± 2.3	3.4 ± 2.5
Mental status score	4.7 ± 3.9	3.7 ± 5.5	3.1 ± 2.9

*VA hospital-based respite care.

†The higher the number, the more severe acute physiology subscore. APACHE = acute physiology and chronic health evaluation.

‡The higher the number, the more severe chronic health evaluation subscore.

§The higher the number, the more functionally disabled on activities of daily living (ADL) scale.

||The lower the number, the lower the mental status.

tal days were collected during a 6-month period for all subjects.

Results

There were no significant differences in the demographic profile or severity of illness measures among the three study groups as determined by chi-square and one-way analyses of variance (Table 1). Acute geriatric service patients were admitted for a variety of acute conditions: congestive heart failure, falls, atrial fibrillation, pleural effusion, exacerbation of chronic obstructive pulmonary disease, patella fracture, cellulitis, seizures, diarrhea, incontinence, and herpes zoster infection. Patients with unstable conditions were routinely admitted to the University House Staff Service and not the acute geriatric service.

Reasons for respite admissions consisted of caregiver illness⁴ and vacations.¹¹ The length of respite stay for caregiver illness was not significantly longer than for vacation respite. None of the respite admissions was for an acute medical

problem, and so the respite patients were similar to the matched HBHC patients in this regard.

The percentage of medical diseases in the three groups was for the most part parallel (Table 2). Exceptions were a higher rate of stroke in the respite group and psychiatric disorders in the HBHC control group.

To test the adequacy of the matching strategy specifically, each patient was categorized, based on published standardized norms, as having mild, moderate, or severe limitations on each of the following dimensions: activities of daily living score, mental status questionnaire score, and chronic health evaluation subscores. Mild limitation was assigned a score of 1, moderate limitation a score of 2, and severe limitation a score of 3. The limitation scores were summed for each patient to provide a severity index. A one-way analysis of variance was then performed on the severity index. No significant differences were found ($F = 0.13$, $df = 2, 42$, $P < 0.88$). The severity of the patients' conditions were the same in each condition (mean = 5.36 for acute geriatric service patients, 5.50 for HBHC patients, 5.67 for respite patients). Taken together, the data suggest that the severity of illness, age, and functional status of the respite group and the control groups were equivalent and that matching effectively controlled for these confounding variables.

Table 2. Percentage of Medical Diseases Found in Respite Group, Acute Geriatric Medicine Control Group, and Hospital-Based-Home-Care (HBHC) Control Group.

Characteristic	Respite*	HBHC	Acute Geriatric Service
	(n = 15)	(n = 16)	(n = 14)
Cardiac disease	43	38	38
Stroke†	64	38	7
Hypertension	21	31	7
Neurologic disease (excluding stroke)	28	13	7
Respiratory disease	0	31	14
Psychiatric disorders‡	0	38	14
Diabetes mellitus	7	19	14
Dementia (any cause)	7	14	21
Cancer	0	0	7

*VA hospital-based respite care.

†Statistically significant differences among study groups, $P < 0.01$.

‡Statistically significant differences among study groups, $P < 0.05$.

Hospitalization

The median time spent in respite care for the respite group was 15 days. The median time of hospitalization for the acute geriatric service control group was 28 days. Separate one-way analyses of variance were performed on the mean number of acute hospitalizations at 3 months and 6 months following respite care (Table 3). No significant differences in the mean number of acute hospitalizations among the groups was found at 3 months after respite care. A significant difference in the mean number of hospitalizations among the three groups emerged at 6 months after respite ($P < 0.03$). Follow-up post-hoc analyses indicated that the respite group had significantly fewer hospitalizations compared with the HBHC and acute geriatric service control groups.

A one-way analysis of variance was performed on the total number of days spent hospitalized (including both days spent for respite and acute hospitalization). Combining total days hospitalized with the total number of days spent in respite provides a more conservative estimate of the cost-effectiveness of hospital-based respite, because the combined total includes the acute medical care resources used while in respite and after. The difference among groups was not statistically significant ($F = 2.8, df = 2, 42, P < 0.07$). Respite patients were not hospitalized for significantly longer periods compared with the control groups.

Upon closer inspection, one respite patient was found to have an unusually prolonged respite stay (182 days). The patient received respite care for only 7 days, after which an acute pulmonary episode resulted in a transfer to the University

House Staff Service. This episode did not appear to be iatrogenic, but reflected a decompensation of his underlying pulmonary condition. Concurrently, he lost his primary caregiver in the community and had to be transferred back to the acute geriatric service until suitable long-term arrangements could be made for him. Because of the atypical course of events for this patient, the data were reanalyzed with the elimination of this outlier. The resultant difference in the total number of days spent hospitalized (respite and acute hospitalization) among groups was statistically significant ($F = 3.8, df = 2, 41, P < 0.03$). The acute geriatric service group had an *increased* number of hospitalized days (mean = 70) in comparison to the respite (mean = 41) and HBHC groups (mean = 32). The total number of days hospitalized was essentially the same for the HBHC and the respite groups. If the number of respite days are removed from the total, the resultant average total of 26 days in the respite group is actually less than the average 32 hospital days in the HBHC group.

Iatrogenic Complications

In comparison with the acute geriatric service patients, respite patients did not appear at risk for excessive iatrogenic complications. Respite patients experienced 7 iatrogenic complications (2 falls, 2 decubitus ulcers, and 3 infections) compared with the acute geriatric service patients, who suffered 8 iatrogenic complications (1 fall, 2 decubitus ulcers, and 5 infections). Because these data are not routinely collected in HBHC, it is unknown how these rates compare with community-residing older adults.

Acute geriatric service patients were marginally more likely to die (28 percent) compared with respite patients (7 percent) and HBHC group outpatients (7 percent; $P = 0.15$). Of the respite patients, 3 were placed in nursing facilities compared with 3 acute geriatric service patients and 1 HBHC outpatient.

Discussion

Although some reports and anecdotal experiences have suggested that hospital-based respite care might be harmful,¹⁵ our results do not indicate any harm and argue that a slight benefit is associated with hospital-based respite. No evidence of increased mortality was found in the respite group compared with the acute geriatric service control

Table 3. Mean Number of Hospitalizations at 3- and 6-Months' Follow-Up as a Function of Respite Group, Acute Geriatric Medicine Control Group, and Hospital-Based Home-Care (HBHC) Control Group.

Group	3 Months*	6 Months†
Respite‡ (n = 15)	0.13	0.27
HBHC (n = 16)	0.38	0.56
Acute geriatric service (n = 14)	0.36	0.86

*Mean frequency of hospitalizations. In the acute geriatric service, 69 percent of the patients were hospitalized following discharge compared with 62 percent of the patients in the HBHC and respite groups ($P = NS$).

†Differences in mean frequency of hospitalizations among groups significant $P < 0.03$.

‡VA hospital-based respite care.

group or community-based HBHC control group. The major benefit associated with respite was the reduction in the number of acute hospitalizations in the respite patients. Whereas the number of patients hospitalized in each group was equivalent, the number of rehospitalizations was significantly less in the respite group, suggesting a potential prophylactic effect for respite groups.

The total number of days spent in the hospital by the respite group was not excessive compared with the total number of days in the hospital spent by the acute geriatric service control group or the HBHC control group, even with the inclusion of an atypical outlier patient in the respite group. In fact, when this outlier was removed from the analysis, the number of total hospital days for the respite group was significantly less than that of the acute geriatric service control group.

The number of hospital days for the HBHC control group can be taken as the expected baseline of acute hospital days for respite candidates. That the total number of hospital days of the respite group (respite days and acute hospitalization days following respite) was not significantly greater than that of the HBHC group (regardless of whether the outlier in the respite group was included in the analysis) suggests that acute care respite is not associated with excessive use of acute care resources.

It is important to note that the measure of total hospital days used by the respite group included the number of days they spent in respite. Because cost at the Veterans Hospitals is based on a per diem rate, and not calculated according to service utilization, there was no tangible cost savings for the respite group. For there to be a cost savings, the total number of acute care hospital days would have to be significantly less for the respite group compared with that of the community-based HBHC group. In other institutionalized settings, however, respite care could become cost-effective, even if the total number of hospital days is not less than the expected baseline hospitalization rate. Because respite patients typically require routine nursing care, not costly acute services and tests typical in an acute care stay, the respite days could be much less expensive. In fact, the respite costs could, over time, be offset by the expected reduced future hospitalization rate of respite patients.

While hospital-based respite in this study was not harmful or risky to chronically ill older adults, no dramatic advantages were observed. This finding echoes other research.⁶⁻⁸ Primarily, investigations of respite have shown benefits for the caregiver.³ Indeed, it might be that the benefits of respite are limited to caregivers. Given the increasing complexity of chronic care associated with an aging population, additional research that specifically examines the impact of hospital-based respite on patients is urgently needed. Randomly assigning respite patients to both acute care and community-based respite care and observing them prospectively would be the ideal methodology. For practical and ethical reasons, however, it may not be possible to do so. For example, in our study there was no community-based respite available through the VAMC, and there was no waiting list for acute care respite from which a control group could be constituted.

Although in the present study, all patients were successfully matched for severity of illness, functional status, and number of serious medical illnesses, further research is needed to determine the accuracy of severity of illness measurements in nonintensive care hospital and community settings. In addition, the sample size of study and control patients was small. Power analysis indicated that the sample size was large enough to detect moderately powerful effects most relevant to the clinician. Larger sample sizes are necessary to confirm and detect other potential differences associated with hospital-based respite. Finally, the sample patients were all men, and whether the results generalize to women patients is uncertain.

Caution must be exercised with generalizing the results beyond the VA setting, which is somewhat atypical. Most hospitals currently do not have a formal respite program. The VA is not under the Diagnostic Related Group reimbursement system, thus the patients' length of stay was longer than would be expected in community hospitals. The VA does have richer follow-up services, which could facilitate outpatient management and recruitment of respite clients.

At first glance a case can be made that community-based forms of respite could be more beneficial to the older adult. Advantages include remaining in a familiar environment and avoiding relocation trauma.¹⁶ Further, in-home respite care avoids iatrogenic complications, such

as nosocomial infections, overmedication, and injury.¹⁷

Nevertheless, with respite patients in the community getting older, sicker, and frailer, these advantages and the universal appropriateness of community-based respite can be questioned. The more complex medical and nursing care required during respite can strain the resources and qualifications of less-trained respite providers. Because of the potential complications that can develop with chronically ill geriatric patients, a hospital setting for respite could be especially beneficial. In addition, as community-based respite services are in demand and difficult for families to find, primary care physicians are often asked to hospitalize chronically ill patients when the caregiver is in need of emergency help for medical or psychosocial reasons. In these cases, institutional-based respite could be an attractive and viable alternative.

With the trend of decreasing use of hospital beds,¹⁸ hospital-based respite can be potentially cost-effective for families and offer a new revenue source for hospitals. Hospital-based respite may be an option well worth investigating in the future. A valid concern for physicians remains the potential danger of a greater rate of iatrogenic illness and an expectation of more aggressive care based on a tertiary care model.¹⁵

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