

Patient Outcomes after Discharge from a Geriatric Day Hospital

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RÉSUMÉ

Les données révèlent que les personnes âgées fragiles profitent de tout un spectre de soins plutôt que du modèle admission/sortie d'hôpital de notre système de santé. Cette étude se concentre sur l'évolution de l'état de santé des patients après leur sortie d'un hôpital gériatrique de jour (HGJ) afin de déterminer quelle proportion de ces gens continue de bien aller et quelle proportion connaît un déclin, quelles sont les différences entre ces deux groupes et si l'on peut déceler des facteurs qui permettraient de prédire la détérioration de l'état de santé. Au moyen d'un sondage téléphonique et de méthodes d'évaluation de l'atteinte des objectifs, les objectifs de 151 patients ayant obtenu leur sortie d'un HGJ il y a plus de six mois et moins de 18 mois ont été étudiés afin de déterminer si les objectifs atteints à l'HGJ se sont maintenus ou non. Tous les patients sauf cinq ont vu une amélioration de leur état entre leur admission et leur sortie de l'HGJ; après leur sortie, 39 p. 100 des patients ont vu leur état se détériorer. Le besoin d'un soutien accru au sein de la communauté constituait un élément permettant de prédire la détérioration, ce qui témoignait probablement de la fragilité du patient. Bon nombre de diagnostics médicaux et de traitements ne constituaient pas des éléments de prédiction. Les personnes âgées fragiles tendent à ne pas conserver les niveaux atteints dans un HGJ après leur sortie et elles pourraient tirer profit de services continus.

ABSTRACT

Evidence suggests that frailer older patients benefit from a continuum of care rather than the admit/discharge model of our health system. This study examined patient outcomes after discharge from a geriatric day hospital (GDH) to determine what proportion continues to do well, what proportion declines, how the two groups differ, and if factors predictive of deterioration can be identified. Using telephone survey and Goal Attainment Scaling methodologies, the goals of 151 patients discharged from a GDH between 6 and 18 months previously were examined to determine whether GDH achievements were maintained or lost. All but 5 patients improved between GDH admission and discharge; after discharge, 39 per cent deteriorated. The need for more support in the community was predictive of deterioration, probably reflecting patient frailty. Number of medical diagnoses or medications were not predictive. Frailer older patients tend not to maintain goals achieved in a GDH after discharge and may benefit from ongoing maintenance.

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Introduction

Several studies have failed to show benefits of the geriatric day hospital (GDH) model beyond those of other geriatric care models (Eagle et al., 1991; Forster, Young, & Langhorne, 1999). In others it has been shown that although benefits may accrue from a GDH program, particularly when applied to the frailer, more dysfunctional client, the effects may not last (Lewis, Turpe, MacLeod, & Cowan, 2000; Tucker, Davison, & Jogle, 1984). In part the problem may be lack of clarity on the best approach for different clients, and in part the use of measures insufficiently individualized to the client. Heterogeneity in the GDH population has been noted, and it would be surprising if one fixed functional tool captured the changes in all patients (Forster et al.).

The GDH may also be the only access available to a geriatric non-inpatient focus of rehabilitation. Community models of rehabilitation, especially for the elderly, are underdeveloped and generally unavailable (Eldar, 2000; Enderby & Wade, 2001). Furthermore, comprehensive geriatric assessment, a mainstay of good geriatric practice, may be available only in specific places that are part of a specialized program and not readily available in the community. The crucial component of the assessment, acting on the outcome of the assessment, is also not readily available and may, once again, be accessible only in specific sites such as the GDH. For now, the GDH fills a need, but may suffer from the usual institutional program shortcomings, in that its focus is on admission and discharge, and the discharged patient is left without ongoing intervention. Subsequent involvement of the health system with the patient is through a community-based agency that provides supportive – but very limited – rehabilitative care. Although Canada has a system of universal access to health care, there remain shortcomings in providing continuity of care across publicly funded but stand-alone programs. Regardless of the model employed to improve the function of frail older individuals, the fact that improvement is possible is in itself positive. However, the subsequent tendency for the improvements to be lost is a major concern (Tucker et al., 1984).

Several studies have explored different models of care for the frailer elderly, and most of these have focused on institutionally based models (Stuck, Siu, Wieland, Adams, & Rubenstein, 1993). Some have explored the needs of the community-based elderly and demonstrated that an ongoing and maintenance intervention seems to work better (Melin & Bygren, 1992; Melin, Hakansson, & Bygren, 1993; Nikolaus, Specht-Leible, Back, Oster, & Schierf, 1995; Tinetti

et al., 1999). The general conclusion is that a continuous process of care entailing ongoing surveillance and rapid re-assessment and treatment are required, posing a particular challenge for a system constructed in stand-alone silos with different mandates, management and funding structures. For overall well-being, a program of maintenance – entailing initial comprehensive geriatric assessment and frequent in-home follow-up visits to re-evaluate and adjust management – has led to improved outcomes (Stuck, Egger, Hammer, Minder, & Beck, 2002). A system providing a continuum of care is required for these patients, although they may not be readily identifiable at the moment. In addition, the relative importance of treatment in one's own home, where rehabilitation and function can be personalized, versus the potential benefits of the social component of the GDH, are not at the moment definable.

The purpose of the present study was to explore the potential role of the GDH in such a continuum of care. Specifically, we examined whether patients attending the GDH improve, and if they do, how well the improvement is maintained. Additionally we sought to begin to identify the characteristics of those likely to deteriorate and who might benefit from ongoing maintenance. In conducting this study we have used Goal Attainment Scaling, a method whereby individualized goals can be constructed for each patient, and one that is sensitive to change (Stolee, Stadnyk, Myers, & Rockwood, 1999).

Methods

Setting and Participants

All patients who had been discharged from the GDH between 6 and 18 months previously were included. This time frame is essentially arbitrary but was chosen as a compromise between waiting long enough for change to occur, and waiting so long that other new events might have occurred that could affect level of function. There is no evidence upon which to choose a follow-up period. Patients represented a broad cross-section of medical and functional problems, usually multiple as typifies the elderly with functional deficits. The mean number of diagnoses was 6.2 ± 2.0 SD. Commonest diagnoses were hypertension ($n = 79$), hip surgery (hip fracture and/or joint replacement) ($n = 57$), depression ($n = 40$), osteoarthritis ($n = 39$), urinary incontinence ($n = 27$), diabetes mellitus ($n = 20$), cognitive impairment ($n = 20$), stroke ($n = 17$), and non-specific functional decline ($n = 15$). Patients with frank dementia are not accepted on the GDH program because of inability to provide adequate supervision and the limitations

that cognitive impairment places on goal achievement. Only 23 had Mini-Mental State Examination (MMSE) scores under 23, and only 8 under 20. All patients underwent team assessment and were considered appropriate for the rehabilitation program.

Evaluation and Outcome Indicators

All patients admitted to the GDH have goals set, tracked, and scored using Goal Attainment Scaling (GAS) methodology. Goal Attainment Scaling provides a 5-point scale (-2, -1, 0, +1, +2) where -1 is usually the patient's current level of functioning, 0 is the level expected to be achieved in the GDH, and +1 and +2 represent greater degrees of improvement than expected. A final outcome score of -2 represents deterioration. Goals are defined at the beginning of therapy, using an interdisciplinary approach. Patients can have one or several goals set, and GAS methodology provides a way of amalgamating scores on several goals into one score. The formula is such that the score is distributed around a central point of 50 rather than zero, thus eliminating negative scores. Allowance is made in the formula for the number of goals set, but if a client improves precisely as predicted, the final score will be 50. The scores of many patients can be amalgamated to evaluate the overall performance of the program. In this case, a final score above 50 implies that the team or patient is doing better than expected, or the goals are being set too low. The performance of GAS has been assessed within the geriatric rehabilitation context (Stolee et al., 1999). It has been shown to be responsive to change for this population, exceeding the responsiveness of other instruments, such as the Barthel Index of Mahoney and Barthel (1965). Effect size (Kazis, Anderson, & Meenan, 1989) has been shown to be large for GAS (Hartman, Borrie, Davison, & Stolee, 1997). The theory underlying GAS and its use in clinical settings has been discussed by Kiresuk, Smith, & Cardillo (1994).

Procedure

All included participants had their original GAS sheets photocopied and any marks indicating their final level of achievement obliterated. An independent researcher phoned all patients and inquired about their current level of functioning in each area where goals had originally been set. The original GAS scales were re-scored using this information.

Other information gathered on each patient was a list of medical diagnoses made at entry to the program and a list of medications upon discharge. Demographic data included age, gender, and marital status, and whether the patient lived alone or with a potential caregiver. The need for caregiver support

and the provision of formal care support through the community-based agency was recorded. Information about major medical events since discharge from GDH was sought, including new medical problems or service utilization such as hospital admission.

Results

One hundred and fifty-one patients (mean age = 81 years \pm 6.7 SD, range 62–99) were identified as eligible for the study. Of the 151, 135 had complete baseline data, and 102 (mean age = 80.4 years \pm 6.7 SD) could be contacted after at least three attempts. Reasons for failure to contact included death ($n=5$), no answer ($n=27$), and refused to participate ($n=17$).

Between admission and discharge, the GAS increased from 39.9 ± 1.34 SD to 52.0 ± 6.5 SD in the 151 subjects for an effect size of 9.0, and from 36.8 ± 1.0 SD to 52.1 ± 6.6 SD ($p < 0.001$ for both comparisons) in the subgroup, with follow-up data for an effect size of 15.3. An effect size of 0.8 is considered to be large (Cohen, 1986; Kazis, Anderson, & Meenan, 1988). In the total group, all but 5 improved and none deteriorated. In the sample of 135 with complete data, men ($n=38$) improved more than women ($n=97$), showing a gain in score of 17.0 ± 6.8 SD compared to 14.4 ± 6.4 SD ($p=0.04$). Mean length of time to follow-up was 66 weeks \pm 17.2 SD.

Overall, scores remained steady (GAS at follow-up = 49.7 ± 15.2 SD) with no significant deterioration from discharge (paired t-test, $p=0.196$), but the wide standard deviation suggested wide variance in subsequent course, with some improving and some deteriorating. Overall, 39 per cent had deteriorated. Length of time to follow-up did not differ between those who deteriorated and those who did not. The impact of age, gender, living situation, formal or informal caregiver presence, medical condition, and medication number were explored as potential predictors of future change. Age was similar in both groups (those who deteriorated, mean age = 80.9 ± 7.8 SD; those who did not deteriorate, mean age = 80.5 ± 6.1 SD). Men and women did not differ in terms of subsequent change in score. Those living with someone deteriorated more than those living alone (-4.5 ± 14.9 SD vs. -2.0 ± 10.4 SD, $p < 0.018$), and those receiving formal community supports deteriorated more (-6.9 ± 13.1 SD vs. -0.1 ± 13.2 SD, $p=0.044$). Those who deteriorated tended to have been more likely to fall (60.5% vs. 42% *ns*) and were significantly more likely to need an assistive device for indoor walking (81.6% vs. 43.1% $p < 0.05$). Age correlated with subsequent change score but did not reach significance ($r = -0.204$, $p = 0.054$). There was no correlation with the number of medical diagnoses

or the number of medications being taken and subsequent course. Those who deteriorated compared to those who did not, did not differ in their compliance with recommendations. For a wide variety of reasons, more of those who deteriorated had had contact with a health-care facility during the period of follow-up (53.8% vs. 38.5%, $p = ns$).

Discussion

Goal Attainment Scaling is, by its nature, patient-centred. The goals that are set are specific to the patient and take into account his or her limitations and potential. This is both a strength and a weakness of the scale. The weakness is that it fails to provide an absolute measure of function that allows patients to be classified into functional levels for predictive and other purposes. In the absence of such a scale, in this study we have used the level of support that the patient required following discharge as a surrogate measure of level of function, because dysfunction is an eligibility criterion for the receipt of such services.

The advantage of GAS is that it begins to approach the question of what is important to such patients and what should be measured. It is a criticism of studies such as this where clinical and functional outcomes are measured, that it is not clear what the appropriate outcomes should be and what should be measured. Thus, whether function such as ADL is adequate, or whether quality of life, however defined, is more important, is a recurring issue. Using GAS, goals that the patient perceives as important are the focus of the therapy program. In reality, the goals set are usually a mixture of those important to the patient and those important to the therapist and cover the usual domains considered important in geriatric rehabilitation (Stolee et al., 1999). The fact that the improvement demonstrated in this study was independent of age suggests that the goals are specific to the patient and appropriate to his or her potential. On the other hand, there may be a tendency for the therapists to underestimate the potential of the male patients, who tend to be more likely to exceed the goals set. This does not mean that they do better than the women in absolute terms, but that they simply do better than expected.

It is interesting that the relative improvement is, as expected, independent of age, which is also only weakly related to subsequent duration of the improvement. The more functional patients who live alone maintain their function, whereas those who live with someone do less well, and no doubt the fact that they do live with someone indicates possibly greater level of dependency than would be possible in someone living alone. The same reasoning likely explains the fact that those on formal support

programs also tend to deteriorate. Thus in this study living with someone and needing ongoing support from the system appear to reflect dependency and perhaps frailty. The definition of frailty has been a problem (Gillick, 2001). Fried et al. (2001) attempt to define it in terms of a specific phenotype that has certain clinical manifestations, including dependency, increased use of the medical system, and falling. Overall, these people are more vulnerable to adverse outcomes. Our group who deteriorated after discharge appears to have features of this syndrome. This conclusion is lent support by the fact that these subjects tend to have a greater risk of being fallers and more frequently need assistive devices for mobility.

The conclusion from this study is that those more dependent and possibly frailer older patients can achieve their goals, but – unlike the more independent and possibly more robust patients, who may continue to improve after discharge – they begin to deteriorate when therapy is stopped. This observation begins to identify patients who may need ongoing input from the system in the form of continued therapy. Whether this will prevent the deterioration is unclear, although there is evidence that a home-based program will reduce the progression of functional decline in the physically frail (Gill et al., 2002). Furthermore, there is evidence that extending the treatment program beyond the institutional boundaries is beneficial (Indredavik, Fjaertoft, Ekeberg, Loge, & Borch, 2000; Jones, Miller, & Petrella, 2002). Following a meta-analysis of home visit programs, Stuck et al. (2002) concluded that they were of little value for the frail older client. On the other hand, Gill et al. (2002) demonstrated that a more active interventionist program in the home, employing a therapist who based interventions on disabilities identified on assessment had more success. It may be that, generally speaking, surveillance without active intervention is not of great value, and for some, active intervention without subsequent maintenance is insufficient. What remains less clear is the role of the GDH and what its unique contribution is and can be. A GDH as a stand-alone institution will likely not meet the needs of its frailer clients, but one integrated into a continuum of care that includes active intervention in the home after “discharge” may be more successful.

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