Standardised assessment of older patients by a nurse in an emergency department

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Abstract

The primary aim of this study was to evaluate the ability of a nurse practitioner in geriatrics, working in the emergency department of a tertiary referral hospital, to assess high-risk elderly patients comprehensively. A secondary aim was to explore patient characteristics associated with referral to community aged care services. Of 469 patients assessed by the nurse, 327 (70%) were admitted to the hospital. A comprehensive set of data was obtained for 334 (71%) patients. For 142 patients not admitted, 163 new referrals were made, mostly to the Aged Care Assessment Team. Those referred were more likely to be living alone and non-English speaking. They were also less satisfied with the support they received from family and friends. A single nurse working in a busy emergency department can successfully identify patients with increased care needs, and direct high-risk patients to existing services.

Background

Elderly persons visit the emergency department in greater numbers than their proportion in the total population (Strange 1992). They often have serious complaints that limit function and restrict their ability to live independently. Functional impairment at the time of the emergency visit predicts a poor medical outcome at three weeks (Denman 1989). Functional impairment before the onset of the illness responsible for the visit predicts readmission to the hospital within two weeks (Lowenstein 1986). Functional status is a stronger predictor of length of stay in hospital, mortality, and nursing home placement than is the principal admitting diagnosis (Narain 1988). On discharge from the emergency department, older people are more likely to report a decline in their ability to care for themselves, with an increasing number needing help with personal care, housekeeping and income assistance (Lowenstein 1986, Rosenfeld 1990, Rowland 1990). However, Hedges (1992) reports that an assessment of self-care is not done in most older patients presenting to the emergency department.

In the elderly, hospitalisation and bed rest have many harmful effects, including reduced muscle strength and aerobic capacity, development of contractures and pressure sores, and accelerated bone loss (Creditor 1993, Hoenig 1991). While a formal geriatric assessment can identify and alleviate the relevant risk factors, the traditional time for the assessment is slower than the speed with which deterioration occurs (Creditor 1993, Hirsch 1990). Ideally, the geriatric assessment should begin in the emergency department, with high risk patients referred to geriatric programs (Creditor 1993). With appropriate targeting, these programs reduce LOS, mortality, morbidity, nursing home placements, and inappropriate medication use, and improve quality of life and functional status (Flamer 1996, Stuck 1993, Asplund 2000, Cohen 2002).

To improve the ability of the emergency department to manage older patients, funding was obtained for a nurse practitioner in geriatrics to work in the emergency department on a five days per week, 8am to 4pm roster. Arrangements were made with the emergency physicians for her to help with the management of older patients considered at high risk of admission, but who were not severely ill. The primary aim of this study was to evaluate the ability of the nurse to assess high-risk elderly patients comprehensively. A secondary aim was to explore patient characteristics associated with referral to community aged care services from the emergency department.

Methods

Emergency department aged care liaison nurse

Study patients were assessed by a nurse practitioner experienced in multidimensional assessment and care of the elderly. The nurse did functional, psychological and social assessments, liaised with carers and health care providers, and organized referrals for assessment and support services during normal working hours. The nurse also promoted holistic care of the elderly through regular inservices and daily interactions with emergency staff.

The study of the activities of the nurse practitioner was approved by the institutional review committee of the area health service.

Patient selection

The nurse assessed 469 elderly persons presenting to the emergency department at Liverpool Hospital, a busy tertiary referral hospital in southwest Sydney. Self-referral was the most common source of referral to the emergency department, accounting for 32%. The family and general practitioner referred 27% and 19% respectively. Eight percent were referred from an institutional setting, including 6% from hostels and 2% from nursing homes. The source of referral was unknown in 0.4%.

The study participants were older people presenting to the emergency department considered at high risk of admission to the hospital, but who were not severely ill. Emergency staff were asked to refer patients for assessment by the nurse if they fulfilled any of the following criteria: functional decline, defined as inability to transfer to or from a bed or chair, inability to mobilise, bladder or bowel incontinence, or need for assistance with at least two other activities of daily living (including grooming, toileting, feeding, dressing and bathing); psychological disability (dementia, delirium or depression); social disability (poor coping skills, absent or stressed carer, inadequate community supports or inappropriate accommodation); active multi-system disease (two or more systems); or discharge from hospital within the last 14 days. The nurse reinforced the referral criteria at intervals coinciding with staff rotations (junior doctors and new graduate nurses).

Data collection and analysis

The nurse collected data on demographics, time to complete the assessment, health care usage in the preceding year, range and perceived quality of support services, functional status, cognition, depression, pressure ulcer risk, and referrals made in the emergency department.

The following instruments were administered: Folstein Mini-Mental State Examination (MMSE) (Folstein 1975), Geriatric Depression Scale (GDS) (Yesavage 1988), Social Support Instrument (SSI) (Funch 1986), Lawton Instrumental Activities of Daily Living Scale (Lawton IADL) (Lawton 1969), Modified Barthel Index (MBI) (Wade 1988), and the Waterlow Risk Assessment Scale (Waterlow) (Waterlow 1985).

Patients referred to community-based health care providers were compared with those not referred. Differences between patients were tested using t tests for continuous, normally distributed variables, chi-square tests for dichotomous variables, and Wilcoxon rank-sum tests for ordinal variables. All statistical analyses were performed using the SAS statistical software system.

Results

Four hundred and sixty-nine older patients underwent a comprehensive geriatric assessment by the nurse over a period of four years and nine months (May 1996 to February 2001). Most patients resided outside healthcare institutions. More than one quarter were born in a non-English speaking country. The demographic details are listed in Table 1.

Table 1: demographic characteristics of 469 patients assessed by the nurse

Demographic	Value *	Range	Demographic	Value *
Age (mean±SD) years	79.4±7.0	54.8-98.5		
Gender			**Able to speak English**	
Male	184 (39%)		Yes	417 (89%)
Female	285 (61%)		No	50 (11%)
			Unknown	2 (0%)
Marital status			**Literate**	
Currently married	146 (31%)		Yes	388 (83%)
Not currently married	313 (67%)		No	22 (5%)
Unknown	10 (2%)		Unknown	59 (13%)
Living situation			**Previously known to geriatric service**	
Living alone	165 (35%)		Yes	236 (50%)
Living with others †	300 (64%)		No	224 (48%)
Unknown	4 (1%)		Unknown	9 (2%)
Country of birth			**Income**	
English-speaking	336 (72%)		Aged pension	384 (82%)
Non-English-speaking ‡	123 (26%)		Repatriation pension	52 (11%)
Unknown	10 (2%)		Other income	18 (4%)
			Unknown	15 (3%)

* All percentages are rounded to the nearest percent

† Includes 31 patients living in hostels and 12 living in nursing homes.

‡ Includes patients from 36 different countries.

Table 2 describes the functional characteristics of the patients. Using standardised instruments and published cut-points, the prevalences of cognitive impairment, depressed mood, and dependence on others for self-care were high. The scores for the three rating methods for the Social Support Instrument show that most patients had a moderate to a good network of social supports (both extent and perceived quality). The carer was the source of information for the MBI and the Lawton IADL in 35% and 34%, respectively, mainly when the patient was cognitively impaired.

A complete set of data was obtained for 334 (71%) patients. The battery of instruments took a median of 35 minutes to complete (interquartile range 30-40 minutes). Instruments most likely to be completed were the MBI (n=461, 98%), the Lawton IADL (n=457, 97%), the Waterlow (n=402, 86%) and the MMSE (n=387, 83%). The median time from referral to nurse assessment was 29 minutes (interquartile range 10 –70 minutes).

One hundred and forty-two patients (30%) were not admitted to the hospital. Of these, the nurse found 115 (81%) to be dependent in at least one activity of daily living. One hundred and sixty-three new referrals were made to community-based support services for 101 (71%) patients not admitted (Table 3). Sixty-one referrals were made to the Aged Care Assessment Team, 43 to primary care nurses and 26 to Home Care. Those referred were more likely to be living alone (45% versus 24%, p=0.028) and less likely to be English speaking (83%

versus 98%, p=0.011). They were also less satisfied with the support they received from family and friends (median score 3.0 versus 3.7, p=0.0004, SSI scoring method two). No other demographic or functional characteristic measured in the emergency department achieved statistical significance (Table 4).

Table 2: functional characteristics of 469 patients assessed by the nurse

Characteristic	Sample (% Total)	Value (%)	Median	Interquartile Range	Range
MBI	461 (98)		13	10-17	0-20
Score<20		421 (91)			
Lawton IADL	457 (97)		2	1-4	0-8
MMSE	387 (83)		23	18-27	0-30
Score<24		205 (53)			
GDS	334 (71)		4	2-6	0-15
Score>5		105 (31)			
SSI *					
Rating method 1	378 (81)		3	2-3	0-5
Rating method 2	378 (81)		3.25	2.75-3.75	0-4
Rating method 3	378 (81)		2.2	1.8-2.6	1-3.8
Waterlow †	402 (86)		15	11-19	0-34
Any risk pressure area		319 (79)			
High risk pressure area		85 (21)			
Very high risk pressure area		78 (19)			
Health usage last 12 months					
Emergency department visits	463				
Nil		220 (48)			
One		94 (20)			
Two or more		149 (32)			
Admissions to hospital	462				
Nil		240 (52)			
One		110 (24)			
Two or more		112 (24)			

* Rating method 1 measures extent of supports (maximum score of 5); rating methods 2 and 3 measure extent and perceived quality of supports (maximum scores of 4).

† Score>10, any risk pressure area; 15<score<20, high risk pressure area; score>20, very high risk pressure area.

MBI,Modified Barthel Index; Lawton IADL, Lawton Instrumental Activities of Daily Living Scale; MMSE, Folstein Mini-Mental State Examination; GDS, 15-point Geriatric Depression Scale; SSI, Social Support Instrument; Waterlow, Waterlow Risk Assessment Scale.

Table 3: referrals initiated by nurse for 101 patients not admitted to hospital

Community-Based Support Service	Number of Referrals
Aged Care Assessment Team	61
Primary health nurses	43
Home Care	26
Meals-on-Wheels	13
Community Aged Care Package	8
Day care	7
Other	2
Home respite	1
Mental Health Service	1
Home modifications	1

Table 4: characteristics of 142 patients by referral status to community services

Characteristic	Referred (n = 101) *	Not Referred (n = 41) *	P Value
Age (mean ± SD)	78.4 ± 7.3	79.8 ± 7.9	0.54
Male (%)	35	46	0.20
Currently married (%)	26	29	0.67
Living alone (%)	45	24	0.028
Self-caring (%)	74	63	0.20
English-speaking	83	98	0.011
Born in English-speaking country	71	83	0.18
MMSE (median, Q1-Q3) †	24, 20-27	24, 20-28	0.82
MBI (median, Q1-Q3)	16, 14-19	18, 15-19	0.25
Lawton IADL (median, Q1-Q3)	4, 2-6	4, 2-6	0.91
GDS (median, Q1-Q3)	3, 2-6	2, 2-4	0.34
Waterlow (median, Q1-Q3)	13, 10-17	11, 10-13	0.06
SSI method 1 (median, Q1-Q3)	3, 2-4	2, 2-3	0.17
SSI method 2 (median, Q1-Q3)	3.0, 2.5-3.3	3.7, 3.0-4.0	0.0004
SSI method 3 (median, Q1-Q3)	2.0, 1.6-2.4	2.2, 1.8-2.6	0.34
Inpatient visits last 12 months (median, Q1-Q3)	1, 0-1	1, 0-1	0.92
Emergency visits last 12 months (median, Q1-Q3)	1, 0-2	0, 0-2	0.77

* Not all characteristic were able to be measured in all patients

† Q1-Q3 refers to interquartile range

Discussion

The assessment of function and cognition is important in older patients because it identifies those at risk of poor outcomes. Preexisting functional dependence, functional decline immediately before admission, and atypical disease presentation independently predict poor hospital outcomes (Jarrett 1995). The number of functional problems, the presence of cognitive impairment, and a previous visit to the emergency department predict a

subsequent visit (McCusker 1997). Patients with moderate to severe cognitive impairment within a year of assessment are more likely than those with no impairment to be hospitalized, to visit the emergency department or to die (National Institutes of Health 1988). Because functional impairment is a strong predictor of outcomes, use of practical and reliable instruments to assess functional ability in the emergency department setting is important (Hedges 1992). Such instruments should detect moderate impairment that is potentially remediable through early intervention.

Despite at least moderate disability, 71% of our patients completed a comprehensive assessment incorporating six structured instruments. These instruments are often part of a geriatric assessment and offer standardization, precision, relative freedom from bias, and ease of use by non-physician personnel (National Institutes of Health 1988). Pinholt (1987) compared standard instruments with clinical judgement. Although clinicians recognized severe impairments, the sensitivity of clinical judgement was poor in detecting moderate impairments in four categories (mental status, nutrition, vision, and continence).

Many elderly patients deteriorate in hospital and become dependent in self-care. While a formal geriatric inpatient assessment can identify and alleviate the risk factors for dependency, the time for the assessment is slower than the speed with which deterioration occurs (Creditor 1993, Hirsch 1990). Ideally, the assessment should begin in the emergency department. Strategies studied include a comprehensive geriatric consultative team based in the emergency department, a rapid response service pathway to community-based care, and a nurse to assess non-targeted elders (Gold 1997, O'Grady 1996, Miller 1996). The literature, however, supports targeted geriatric interventions to those most in need, so as not to waste scarce resources or dilute the effects of interventions (Winograd 1990). Our study shows that a single nurse working in a busy emergency department can successfully complete a comprehensive geriatric assessment and identify patients with increased care needs. We suggest that high risk patients needing inpatient care should be referred to inpatient geriatric programs, which reduce LOS, mortality, morbidity, nursing home placements, and inappropriate medication use, and improve quality of life and functional status (Flamer 1996, Stuck 1993, Asplund 2000, Cohen 2002). Patients not admitted to the hospital, but who need ongoing multidisciplinary care, should be referred to established geriatric outpatient programs. These programs consistently improve outcomes such as physical functioning, psychological health and health-related quality-of-life, and reduce medication usage (despite increased number of diagnoses), hospitalisation, emergency department visits, and need for home healthcare services (Cohen 2002, Reuben 1999, Boult 2001, Burns 1995, Williams 1987, Engelhardt 1996). Furthermore, the most successful programs couple assessment with case management (Roller 1996). In our study, 163 new referrals to community services were made for 142 patients not admitted, mostly to the Aged Care Assessment Team. These teams are experienced in comprehensive, multi disciplinary geriatric assessment and practise case management models of care.

The concept of social support is generally regarded as multidimensional, with social network and perceived support being major dimensions (Funch 1986). The SSI is a short social support scale that uses three scoring strategies to measure social network and perceived support. While the first scoring method concentrates on the variety of sources available in the social network, the second and third scoring methods focus on perceived support. The second method is the mean support score from all the sources indicated as available, while the third also averages unavailable sources (which are then given the lowest score of one) (Funch 1986). Social support has positive effects on many health outcomes, including morbidity (from chronic, infectious and psychiatric diseases), self-reported symptoms and illness behaviour, and recovery from illness (Funch 1986). Perceived support is a stronger predictor of health outcomes than is social network (Funch 1986). Social support also influences health service utilisation. In the Longitudinal Study of Ageing, elderly people who were socially active decreased their risk of institutional care by almost one-half, whereas living alone increased the risk (Steinbach 1992). Patients with less accessible social support have higher need for home health care services after discharge from the hospital (Solomon 1993). Our data shows that living alone and perceived social support are also indicators of service utilisation for patients discharged from the emergency department.

Overall, patients from minority ethnic communities have limited access to health care services, due to communication difficulties, lack of knowledge of services, and cultural inappropriateness of services (Free 1999). However, they are more likely to be referred to Aged Care Assessment Teams for mental deficit problems, carer stress, social isolation and nursing home placement (Davis 1996). While we have no data on reasons for referral, our non-English speaking patients discharged from the emergency department were also more likely to be referred

to community aged care services. Possible reasons include the longstanding cultural diversity of southwest Sydney, and the familiarity of our nurse practitioner with culturally appropriate community resources.

Our study has several limitations. First, patients may have been selected on their ability to perform the comprehensive assessment. The nurse recruited 19% of patients, with the remainder referred by other emergency department staff, who were aware that the nurse was undertaking a systematic data collection. However, patients with cognitive impairment and disability are more likely than not to have difficulty completing assessment instruments, even when these are administered by a health professional. Of our patients with available data, 53% appeared cognitively impaired, 31% were likely to be depressed, and 91% were dependent in at least one activity of daily living. With this high prevalence of disability, a major selection bias is unlikely. Second, only 26% of our patient were unable to speak English. A major issue with assessment instruments is the ease with which they can be administered. The completion rates may be much lower in patients with poor English skills, particularly when administered in busy emergency departments with limited access to interpreters. Third, our study is not a rigorous survey of elderly patients presenting to an emergency department. The nurse worked in normal hours and was unable to assess all elderly patients at risk of poor outcomes. Nevertheless, many patients with important functional and psychological disability were identified, and referrals to community-based services initiated.

Conclusion

Because functional impairment is a strong predictor of outcomes, use of practical and reliable instruments to assess functional ability in the emergency department setting is important. A single nurse practitioner in geriatrics, working in a busy emergency department, can successfully complete a comprehensive geriatric assessment incorporating six structured instruments to identify elderly patients with increased care needs. High risk patients needing further care should be referred to existing geriatric inpatient and outpatient programs, which consistently improve the health and quality-of-life of elderly patients.

Acknowledgements

The authors thank emergency department staff at Liverpool Hospital for their encouragement with this study, and acknowledge the contributions of our emergency aged care liaison nurses, Sharon Sutherland, Kamantha Naidoo and Jennifer Tuckwell.

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