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Research Letters

Appropriateness of hospital use: comparison between elderly patients' point of view and a structured questionnaire

SIR—Appropriate use of hospitalisation is a key issue in terms of healthcare resources utilisation and individual needs. Surprisingly, there are only few studies assessing appropriateness of hospital stay in subacute settings. The demographic transition is associated with an increasing number of elderly people with multiple chronic conditions, and a growing need for subacute beds [1, 2]. In addition, the need to bolster rehabilitation is increasingly recognised for ageing patients for whom post-acute care is a pressing health policy issue [3, 4].

Optimal use of hospital beds also remains a challenge because of possible conflicts between medical needs and patients' preferences. Optimised use can contradict patients' views about 'best care' in terms of investigation, treatment, timing or location; and it can decrease their satisfaction as they do not always understand or accept the criteria used to determine the appropriateness of hospital use. Except for rare studies, research on the appropriateness of hospital use relied on professional opinion and/or application of review tools, and neglected patients' views [5, 6].

This study aimed at investigating patients' opinions about the appropriateness of their hospital stay. It also compared this 'subjective' appraisal to an 'objective' evaluation.

Methods

Setting

The study was undertaken in the geriatric department of a university hospital. It was conducted in a 98-bed subacute ward where patients are either transferred from acute care wards (about 2/3) or directly admitted from the emergency room (about 1/3). The median length of stay (LOS) is 15 days and the mean is 21 days.

Design and data analysis

Consecutive patients admitted during a 3-month period were eligible. Data were collected prospectively by three independent observers. Information was obtained through semi-structured interviews (patients' opinions) and a standardised instrument, the appropriateness evaluation protocol (AEP) [7]. The AEP has distinct sets of criteria for admission and for days of stay. An admission or a day of care is deemed inappropriate if no criterion is met. This instrument was used as the best possible tool to approximate an objective evaluation in our care setting [8–10]. Other variables included socio-demographic characteristics, (instrumental

activities of daily living (ADL/IADL) [11, 12], Mini Mental State Examination (MMSE) [13], and co-morbidities.

Study procedures were approved by the hospital ethics committee and written informed consent was obtained from all participants.

'Subjective' appropriateness

Semi-structured interviews were conducted within the first 48 h of stay and included two questions: 'Do you think that your admission to this ward is justified?', 'For what reason do you think that your admission is justified/not justified?'. Subjective appropriateness of day 14 or next-to-last day if the patient had a shorter stay was also assessed. The interviews were tape-recorded and submitted to content analysis [14–16].

'Objective' appropriateness

During the first 48 h, two trained research nurses completed the AEP. Appropriateness of hospital day 14/next-to-last was also assessed. Logistic regression analysis was used to evaluate the association between appropriateness of hospital stay and independent variables.

Comparison between 'subjective' and 'objective' evaluation

Kappa statistics were used to compare the agreement between patients' opinion and the AEP [17]. Reasons given by the patients to justify admission and stay were compared to the results of the AEP. For further data analysis methods, see Appendix 1 in Supplementary Data (<http://www.ageing.oxfordjournals.org/>).

Results

Of 263 consecutive patients, 223 (85%) were included. Exclusions were mainly related to confusion/dementia. Mean age was 71 years (SD = 15), 58% ($n = 129$) were women. Mean MMSE score was 24.9 (SD = 4.6). Mean LOS was 22.6 days (SD = 16.4). At day 14, 147 patients (66%) were still hospitalised and 76 (34%) had been transferred or discharged (home = 58; acute care ward = 10; convalescent home = 8). These patients stayed 8 days on average. Sixty-one percent of the patients were transferred from the acute wards and 39% directly from the emergency room. For detailed patient characteristics, see Appendix 2 in Supplementary Data (<http://www.ageing.oxfordjournals.org/>).

‘Subjective’ appropriateness

When asked within the first 48 h whether their admission was justified, 88% of the patients answered positively. The responses were similar (85%) for day 14 (Table 1). The reasons justifying admission or stay could be classified into seven categories: precise somatic symptom/disorder (‘It’s my liver, it’s the cirrhosis’); vague somatic symptom/disorder (‘I don’t feel well. . . I’m sick’); psychological difficulties (‘My wife died and I drank. . . a little bit’); pain (‘I’m in pain, my back hurts’); social problems (‘My husband couldn’t cope anymore’); other people’s opinion (‘I was sick and my doctor sent me to the hospital’); and ‘do not know’.

‘Objective’ appropriateness

In sharp contrast, the AEP rated 37% of the cases as appropriate admissions and 73% as appropriate hospital days (Table 1). Univariate logistic regression showed that appropriate admission according to the AEP was significantly associated with a high co-morbidity index, and that admission of patients directly from the emergency room was >7 times more likely to be considered as appropriate than transfer of patients from the acute wards. Appropriateness of the 14th/next-to-last hospital day was associated with an age >65, patient’s mode of admission, and an appropriate admission according to the AEP (Table 2). In the multivariate analysis (Table 2), living alone reduced the odds of appropriate admission; admission through the emergency room and appropriateness of hospital day were strongly associated with appropriate admission.

Agreement between patients’ opinion and the AEP was 38% for admission and 73% for 14th/next-to-last hospital day (Table 1). Kappa statistics did not reach significance ($\kappa = -0.01$ and $\kappa = 0.02$, respectively).

Reasons given by the patients for admission considered as inappropriate by the AEP ($n = 140$) were mainly precise or vague somatic symptoms/disorders (90%). Reasons given for the 14th/next-to-last hospital day considered as inappropriate by the AEP ($n = 61$) were precise somatic symptoms/disorders, including pain (87%). Very few patients considered their admission ($n = 4$) or the 14th/next-to-last hospital day ($n = 14$) as inappropriate when the AEP rated it as appropriate. At the admission, reasons given by patients for inappropriateness were other people’s decision for hospitalisation. At the 14th/next-to-last hospital day, reasons were no further exams/treatment conducted at the hospital ($n = 5$), feeling better ($n = 5$), or hospital day 14 was ‘as useless as the admission’ ($n = 4$).

Discussion

Most patients considered both their admission (88%) and the 14th/next-to-last day (85%) as appropriate while the AEP ratings were 37% and 73%, respectively. This divergence raises issues regarding how and by whom appropriateness is assessed, and according to which criteria.

The patients expressed many somatic concerns for their admission and stay. This may indicate that the patients and the AEP somehow share a common identification of what are appropriate reasons for a hospital stay, i.e. somatic problems. However, both parties may not have the same definition of these problems. The AEP focuses on biomedical reasons to measure provision levels of care. In the patients, the emphasis on somatic complaints may be linked to a perceived necessity to comply with the biomedical model of disease to get acceptance for their complaints and needs. Interestingly, the few patients viewing their admission/stay as inappropriate when the AEP rated it as appropriate

Table 1. Comparison of admission and 14th hospital day (or next-to-last) appropriateness at the subacute ward by the patients and by the appropriateness evaluation protocol (AEP)

	Appropriate admission according to the AEP ^b		<i>n</i>
Appropriate admission according to the patient ^b	Yes (<i>n</i> ; % ^a)	No (<i>n</i> ; % ^a)	
Yes	74 (38)	122 (62)	196
No	4 (67)	2 (33)	6
Uncertain	0	5 (100)	5
Other people opinion	5 (36)	9 (64)	14
Unclassifiable	0	2 (100)	2
Total	83 (37)	140 (63)	223
	Appropriate hospital day according to the AEP ^c		<i>n</i>
Appropriate hospital day according to the patient ^c	Yes (<i>n</i> ; % ^a)	No (<i>n</i> ; % ^a)	
Yes	142 (75)	48 (25)	190
No	14 (67)	7 (33)	21
Uncertain	4 (50)	4 (50)	8
Other people opinion	2 (50)	2 (50)	4
Total	162 (73)	61 (27)	223

^a Percentages are expressed as row percentages.

^b Kappa = -0.01 on the 202 admissions for which the patients answered yes or no.

^c Kappa = 0.02 on the 211 hospital days for which the patients answered yes or no.

Table 2. Unadjusted and adjusted associations between appropriate admission, appropriate 14th hospital day (or next-to-last) and independent variables

Unadjusted association independent variable	Appropriate admission according to the AEP			Appropriate hospital day according to the AEP		
	Odds-ratio	95% CI	<i>P</i>	Odds-ratio	95% CI	<i>P</i>
Age			0.15			0.02
less than 66	1	—	—	1	—	—
66 to 75	0.56	0.26–1.21	0.14	2.25	1.03–4.91	0.04
78 to 82	1.40	0.66–3.00	0.38	3.16	1.34–7.47	0.009
83 and over	0.96	0.44–2.10	0.92	2.61	1.12–6.07	0.03
Sex (men versus women)	1.17	0.68–2.03	0.57	1.41	0.77–2.60	0.26
Dependent in at least 1 ADL (yes versus no)	1.20	0.66–2.19	0.55	1.60	0.80–3.22	0.19
Dependent in at least 1 IADL (yes versus no)	0.76	0.36–1.57	0.45	1.72	0.81–3.69	0.16
Living alone (yes versus no)	0.58	0.34–1.01	0.06	0.65	0.36–1.20	0.17
Number of involved organic systems			0.06			0.26
1–2	1	—	—	1	—	—
3–5	0.66	0.36–1.23	0.19	1.49	0.77–2.89	0.23
6 and over	0.24	0.07–0.80	0.02	2.50	0.75–8.35	0.14
Patients' mode of admission			<0.001		—	0.001
- Transferred from the wards of acute internal medicine (same hospital)	1	—	—	1	—	—
- Admitted through the emergency room (same hospital)	7.12	3.73–13.6	<0.001	1.28	0.65–2.51	0.48
Appropriate admission	—	—	—	2.49	1.27–4.88	0.008
Adjusted association						
Living alone (yes versus no)	0.52	0.28–0.96	0.04	—	—	—
Patients' mode of admission			<0.001			0.004
- Transferred from the wards of acute internal medicine (same hospital)	1	—	—	1	—	—
- Admitted through the emergency room (same hospital)	7.41	3.84–14.3	<0.001	0.88	0.42–1.86	0.75
Appropriate admission	—	—	—	2.45	1.16–5.17	0.02

also stressed somatic aspects: they considered that their somatic symptoms did not (or no longer) justify being in hospital.

The results of admission appropriateness according to the AEP differ from the estimates found in other studies (37% versus 75–90%) conducted in acute wards [5, 18, 19]. The AEP was not devised to assess appropriateness in subacute settings. Yet, this instrument has been shown to be valid and reliable in contexts close to ours, i.e. geriatric facilities [8, 9], and elderly patients hospitalised in general medicine wards [10]. In contrast to admission appropriateness, our results regarding the estimates of appropriateness of the 14th/next-to-last hospital day parallel those of studies conducted in acute wards using the AEP (70–73% versus 80%) [5]. The difference between appropriate rates of admission and of hospital days have been related to the distinct sets of criteria for admission and for days of stay which may overestimate appropriateness rates (e.g. when an IV line is placed, even if it is clinically irrelevant, it renders the day of stay 'appropriate') [20].

Psychosocial variables played a role in predicting 'objective' inappropriate hospital use. Living alone doubled the likelihood of inappropriate admission. Previous studies in acute settings have also shown that hospital use is

influenced by various psychosocial factors, including living arrangements and social networks [21] which are of major relevance in elderly patients [22].

Whether these results can be generalised remains uncertain. Yet, our ward is comparable to other subacute settings (regarding type of patients and cost-containment constraints). Choosing the appropriateness of the 14th/next-to-last day as an endpoint may also raise generalisation issues. Nonetheless the correlation is high among day-specific assessments in the same patient [18].

These results stress the variability of the definition of appropriateness which highly depends on what is assessed, how it is evaluated and which standpoint is considered. Admitting and discharging a patient is complex, especially when it comes to evaluating health-care needs and expectations of elderly patients also suffering psychosocial conditions [2, 22, 23]. Defining criteria of appropriate use of subacute care and finding ways to assess this use is an area open for research. Such developments may ensure that appropriate care facilities are available for appropriate patients and that acceptable alternatives exist for the management of 'inappropriate' patients who cannot stay in the community.

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Conflict of interest

None.

Key points

- Various studies have addressed the development of standardised utilisation review tools aiming at the objective assessment of appropriateness of hospital bed use. The present study also addresses the issue of the patients' subjective point of view.
- Comparison between patients' views of appropriateness and 'objective' assessments of appropriateness demonstrated contrasting appraisals. The results raise various issues regarding how and by whom appropriateness is assessed, and according to which criteria.
- Healthcare needs of elderly patients also suffering psychosocial conditions should be inserted in biopsychosocial and multidisciplinary perspectives and take into account patients' expectations.

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