

Delirium in Hospital: an Underreported Event at Discharge

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Objective: Delirium, an important event in hospital, is associated with significant mortality and morbidity. Most patients with delirium recover fully; however, when left untreated, delirium may progress to stupor, coma, or death. Delirium is less likely to resolve completely in elderly patients in whom persistent cognitive deficits commonly occur. The extent to which this information is available to family doctors after discharge was investigated.

Method: A total of 31 patients with delirium who were referred to consultation-liaison psychiatry were assessed using standardized measures. Medical services completed discharge summaries on these patients; a chart review captured the extent to which the diagnosis of delirium and the involvement of psychiatry was recorded in the discharge summaries.

Results: In structured discharge summaries, a reference to delirium occurrence was found in 55% of cases. In unstructured discharge summaries, the reporting was much lower (16% of cases). Delirium was more likely to be reported in women than in men, when it was more severe, or when it was the principal reason for admission, rather than when it occurred during an admission for some other reason.

Conclusions: Delirium episodes that occur during a period of hospitalization for treatment of any medical disorder are underreported, even when specifically diagnosed. Structured discharge summaries tend to increase the rate of reporting.

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Clinical Implications

- Hospital discharge summaries form the main communication link between hospitalists and primary practitioners and may provide vital information for continuing and future patient care.
- Prior episodes of delirium predict vulnerability to future episodes.
- Discharge from hospital of a patient with residual symptoms of delirium requires ongoing management, monitoring, and follow-up in the community.
- The fact that many episodes of delirium are not recorded in the discharge summary has implications for ongoing patient care after discharge.
- Consulting psychiatrists need to teach medical and surgical residents the long-term importance of delirium.
- Hospital clinical teaching units need to improve teaching of the value of clinical notes and discharge summaries to other health professionals.

Limitation

- A small sample size was used.

Key Words: delirium, discharge summaries, underreporting

Delirium, a syndrome defined as a disturbance of consciousness, attention, cognition, and perception, has associated symptoms that may include disturbances in emotions, sleep, and psychomotor behaviour (1). The prevalence of delirium ranges from 10% to 30% in hospitalized patients who are medically ill, to as high as 51% in postoperative patients, and up to 80% in patients with terminal illness (2–5). Prodromal or subclinical symptoms may precede full-blown delirium by 1 to 3 days. Delirium symptoms may last from a few days to as long as 2 months but typically resolve in 10 to 12 days. Most patients with delirium recover fully; however, when untreated, delirium may progress to stupor, coma, or death. Delirium is less likely to resolve completely in elderly patients, with persistent cognitive deficits occurring frequently (2,3,5–9).

Delirium in the medically ill is associated with significant morbidity and mortality. Patients with delirium are at increased risk for various complications, such as pneumonia, decubitus ulcers, and postoperative complications, as well as longer hospital stays and poor hospital outcomes (10). Delirium results in increased risk for death in hospital and during the months following discharge (11). Studies suggest that up to 25% of patients with delirium die within 6 months of discharge (12).

Despite its morbidity and mortality, delirium is often misdiagnosed or is unrecognized by treating physicians. Armstrong and colleagues found that house staff misdiagnosed as many as 46% of delirium cases over a 5-year period (13).

Hospital discharge summaries serve as the main communication link between hospitalists and primary practitioners. Physician surveys yielding information on what a quality discharge summary should include report that a good discharge summary comprises the following: admission diagnosis, pertinent physical examination findings, laboratory results, procedures, complications in hospital, discharge diagnosis, discharge medications, active medical problems at discharge, and follow-up information (14,15). Delirium symptoms often persist following discharge and represent a risk factor for subsequent delirium episodes. Thus, delirium is an important event to record on discharge. Unfortunately, even when delirium is diagnosed and treated, it fails to be reported on the discharge summary (16).

This study examined potential factors that may influence the reporting of delirium as a diagnosis in general hospital discharge summaries.

Method

Participants

Participants were drawn from all referrals to a consultation-liaison psychiatry service in a university teaching general hospital between July 2000 and September 2001.

All patients were seen in an inpatient setting. Referrals were received mainly from internal medicine and its subspecialties, and a small number of consultations were seen from the surgical specialties. Although consultation-liaison psychiatry diagnosed 80 patients with delirium, only 37 of these patients had been assessed using standardized delirium assessment and severity scales. Of these 37 cases, discharge summaries could be obtained for only 31. This paper focuses on the latter group, which comprised 11 men and 20 women, with a mean (SD) age of 73.34 (13.75) years.

Measures

Delirium was assessed clinically and was rated using the Delirium Rating Scale (DRS) and DRS-Revised-98 (DRS-R-98) (17–19). The DRS, a 10-item scale, is completed by the clinician. The DRS-R-98 is a 16-item, clinician-rated scale with 13 severity items and 3 diagnostic items. The DRS assesses 10 aspects of delirium: temporal onset of symptoms, the presence of perceptual disturbances, the presence of hallucinations or of delusions, psychomotor retardation and agitation, cognitive status, physical disorder, sleep–wake cycle disturbances, lability of mood, and variability of symptoms. The DRS-R-98 includes all these, along with language impairment, abnormal thought processes, and fluctuation of symptom severity. For the DRS-R-98, the psychomotor retardation and agitation item of the DRS was subdivided into 2 items, and cognitive status was divided into orientation, attention, short-term memory, long-term memory, and visiospatial ability.

The DRS and the DRS-R-98 rate each item on a 3-, 4-, or 5-point scale, with higher scores representing more intense delirium symptoms. In some cases, physical problems interfered with administering the DRS and the DRS-R-98 to the extent that some items could not be evaluated (for example, visiospatial ability). In these instances, prorated DRS and DRS-R-98 scores were derived using the mean response to the items completed as an estimate of the score for the items not completed. Cut-off scores for the DRS-R-98 were 15.25 (severity) and 17.75 (total) (19). The cut-off score for the DRS (severity) was 12.

Another measure used in assessing delirium severity in this study was the Clinical Global Impression (CGI) scale. This scale is a widely used single-item, 7-point rating of the severity of the patient's illness, relative to others in the same population.

Table 1 Proportions of discharge summaries (DS) containing various indications of delirium and involving psychiatry services

Variable	Unstructured DS <i>n</i> = 22		Structured DS <i>n</i> = 9		Total DS sample <i>n</i> = 31	
	Number of cases	%	Number of cases	%	Number of cases	%
DS mentions the word "delirium"	7	31.8	5	55.6	12	38.7
DS mentions the word "delirium" and (or) synonym of delirium	13	59.1	6	66.7	19	61.3
Specific discharge diagnosis of delirium	0	0.0	5	55.6	5	16.1
Discharge diagnosis of delirium and (or) synonym of delirium	0	0.0	6	66.7	6	19.4
DS mentions psychiatric involvement	—	—	—	—	15	48.4

Psychiatric Diagnoses

All patients met DSM-IV criteria for delirium. A psychiatrist who was experienced in the area of consultation-liaison psychiatry and in the evaluation of delirium provided the clinical assessment and the diagnosis in every instance.

Discharge Summaries

Discharge summaries were reviewed to assess the extent to which they included information about the delirium episode that had taken place during the admission. These summaries were completed after patients were discharged from inpatient hospital care. The styles of discharge summary vary from service to service; for this reason, we looked for specific items of reference. In each discharge summary's review, 5 specific questions were addressed: Was delirium specifically included as a diagnosis arrived at during hospitalization? Was delirium or a synonym (20) included as a diagnosis arrived at during hospitalization? Was the word delirium mentioned in the body of the discharge summary? Was the word delirium or a synonym (20) mentioned in the body of the discharge summary? Was the consultation with psychiatry mentioned in the discharge summary?

Results

In the process of discharge summary review, 2 broad categories of discharge summaries were identified (that is, unstructured and structured). Most discharge summaries were in a narrative format without specific headings or a clear template. These were regarded as unstructured. A smaller number of discharge summaries, to varying degrees, contained headings or followed a template for describing aspects that related to the inpatient hospital stay. If headings included a preferred diagnosis or if a section of the discharge summary was specifically dedicated to discussion of diagnosis and comorbidities, these were regarded as structured discharge summaries. In this context, 22 discharge summaries were unstructured, and 9

were structured. Accordingly, in Table 1, results were reported according to this concept.

Table 1 sets out the proportion of discharge summaries containing the various indications of delirium. We examined the reporting of the diagnosis of delirium. For structured discharge summaries (*n* = 9), reporting delirium as a primary diagnosis or as a comorbidity ranged from 55% (using the word delirium) to 66% (using delirium or a synonym). None of the unstructured discharge summaries (*n* = 22) contained a specific delirium diagnosis or a synonym. Placing this in the context of the total sample (*n* = 31), only 16% contained a specific discharge diagnosis of delirium, and 19.4% made the discharge diagnosis of delirium or used a synonym.

Some unstructured discharge summaries referred to delirium or one of its synonyms without reporting it as an actual diagnosis. It was found that 32% referred to delirium, and 59% referred to delirium or a synonym. In these instances, delirium was not specifically identified as a discharge diagnosis but referred to as an event that occurred during hospitalization.

If any reference to delirium or to one of its synonyms is regarded as equivalent to making a discharge diagnosis of the condition, then unstructured discharge summaries (*n* = 22) reported the diagnosis in 59% of cases, and structured discharge summaries (*n* = 9) in 66% of cases, with the total sample (*n* = 31) of discharge summaries reporting the event in 61% of cases.

Of the discharge summaries, 48% reported that psychiatry had been consulted.

We examined the variables that correlated with whether or not delirium was referred to in the discharge summary. Of the 9 discharge summaries identified as structured, when the reason for admission was delirium (*n* = 5), the discharge diagnosis always included delirium. Conversely, in structured discharge summaries for which the admission was not delirium (*n* = 4),

Table 2 Variables predicting the mention of the word delirium or a synonym in the discharge summary

Variable	Statistic	Significance
Sex	$\chi^2 = 6.34$	0.02
DRS-R-98 severity	$r = 0.46$	0.01
DRS-R-98 total	$r = 0.43$	0.02
DRS	$r = 0.24$	0.20 (ns)

DRS = Delirium Rating Scale; ns = not significant

Table 3 Mean rating: instrument scores

Variable	Mean (SD)	Maximum possible score and cut-off scores for delirium for measuring instruments	<i>n</i>	Range in our study
DRS-R-98 total	21.24 (6.19)	46 (17)	31	11–31
DRS-R-98 severity	16.10 (6.16)	39 (15)	31	5–26
DRS severity	17.61 (4.82)	32 (12)	31	7–26
CGI	4.20 (0.94)	7 (3)	31	3–6

CGI = Clinical Global Impression; DRS = Delirium Rating Scale

the discharge summary was unlikely to include delirium (1 summary in 4 included delirium).

When we examined whether delirium or a synonym was mentioned as a problem or event during the admission, 3 variables that were significantly correlated with this emerged (Table 2). These were the DRS-R-98 total score, the DRS-R-98 severity score, and the sex of the patient. Higher scores on the DRS-R-98 predicted a higher likelihood of including delirium in the discharge summary. Female sex was found to have a significant positive relation to the inclusion of delirium (or synonym) in the discharge summary. For 10 of 11 women, discharge summaries included delirium (or a synonym), whereas in men it was less likely to be included (only 9 of 20).

Table 3 presents the range of scores that were obtained from our patient sample using the various rating instruments. This table also includes the means and standard deviations of these scores and refers to maximum scores that might be obtained for each of these instruments, as well as their cut-off scores. The mean DRS score is 17.61, with quite a wide distribution. This score is comparable with the mean of 17.0 (SD 4.0) reported by Rockwood (8). The mean DRS-R-98 severity score is 16.10, also with a wide distribution. The DRS-R-98 total score of 21.24 includes an assessment of language impairment and thought processes, as well as a fluctuation of symptom severity. The mean CGI score is 4.20.

Discussion

In this study, underreporting of an important medical event in the discharge summary coincides with the published literature. Such underreporting is also described for intracranial injuries, thoracic injuries, and spinal fractures (16).

Generally, community physicians expect to be informed of complications that occur during treatment of their patient while in hospital (15). In the instance of delirium, prior episodes of delirium predict vulnerability to future episodes, not only making this a complication occurring during hospitalization but also identifying a risk factor that is important to convey to the treating physician. In addition, delirium does not resolve completely by the time of discharge in many patients (21). Residual symptoms and persistent cognitive impairment

may require ongoing management following hospital discharge.

Our study found that most of the discharge summaries lacked much structure. Reporting the event of delirium was less likely to occur in the unstructured discharge summaries than in those with a more structured format. The unstructured format of most discharge summaries in our sample may be one factor that contributes to the low reporting.

In patients with delirium at the time of admission, discharge summary reporting was higher, compared with patients whose delirium developed during the inpatient stay (22). This finding indicates that greater emphasis is placed on delirium when the primary reason for admission is to investigate and to identify the etiology of the acute confusional state. This differs from cases in which delirium develops during the course of managing a primary physical problem, wherein a transient period of delirium may be sometimes expected (for example, in elderly patients hospitalized for treatment of community-acquired pneumonia) (4). In these instances, the occurrence of a mild, rapidly transient episode of delirium may be regarded as part and parcel of the pneumonia, not as a separate entity requiring specific reporting in a discharge summary.

The distribution of scores on all the rating instruments used contains low figures (reflecting less severe delirium) because, in many instances, the delirium that was diagnosed was resolving or being managed by the medical service prior to consulting us. The low scores most likely reflect that many patients' delirium had improved and was no longer as severe at the time of rating.

Although the consultation-liaison psychiatry service had been asked to see all the patients in our study, the discharge summary mentions psychiatric involvement in only 48% of cases. We did not compare this with the level of reporting for other disciplines that may have been consulted during the course of the hospitalization.

The DRS is the most widely used instrument for rating delirium severity (23). As a result of research on the original

instrument, however, the DRS-R-98 was developed and validated (19). The original DRS did not emerge as a significant predictor of discharge summary reporting of delirium, but this was the case with the DRS-R-98. This suggests that the improvements in the revised scale (for example, more weight for cognitive impairments) make it more sensitive to the variables that affect whether a clinician sees the delirium as significant enough to report at discharge.

Our data suggest that the severity of the delirium is a factor affecting delirium reporting in the discharge summary, with more severe deliria more likely to be reported. In addition, the sex of the patient appears to be related to reporting a delirium diagnosis in the discharge summary, with a higher rate of reporting in women with delirium, compared with reporting in men. We examined the relation between sex and delirium severity and found that DRS-R-98 scores did not differ significantly between men and women: mean (SD) for men 22.8 (6.56); mean (SD) for women 20.41 (5.97) (differences not significant, $P > 0.25$). The 2 groups were also equivalent in age: mean (SD) for men 77.5 years (15.27), mean (SD) for women 71.0 years (12.63), (difference no significant, $t [29] = 0.97$, $P > 20$). This suggests that the sex of the patient is in itself an important factor in reporting delirium, but the reason for the relation is unclear from the present data. The small sample size was a limitation.

Conclusions

Episodes of delirium that occur during a period of hospitalization for treatment of any medical disorder are underreported, even when specifically diagnosed. In this study, the exception to underreporting was for those cases in which delirium was diagnosed at the time of admission: reporting occurred in every instance.

The likelihood of reporting delirium in the discharge summary increases with the severity of the delirium, and in this regard, the DRS-R-98 seems a more useful assessment tool for evaluating delirium than the older DRS version.

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Résumé : Le délire à l'hôpital : un événement sous-déclaré au moment du congé

Objectif : Le délire, un événement important à l'hôpital, est associé à une mortalité et à une morbidité significatives. Bien que la plupart des patients souffrant de délire se rétablissent complètement, quand ils ne sont pas traités, le délire peut mener à la stupeur, au coma ou à la mort. Le délire est moins susceptible d'arrêter complètement pour les patients âgés, chez qui les déficiences cognitives persistantes se produisent fréquemment. Nous avons cherché dans quelle mesure cette information est disponible aux médecins de famille après le congé.

Méthode : Un total de 31 patients souffrant de délire qui ont été adressés à un service psychiatrique de consultation-liaison ont été évalués à l'aide de mesures normalisées. Les services médicaux ont rempli des sommaires de congé pour ces patients, et la mesure dans laquelle le diagnostic de délire et la participation de la psychiatrie ont été consignés a été déterminée lors d'un examen des dossiers.

Résultats : Dans les sommaires de congé structurés, la mention de l'occurrence du délire a été trouvée dans 55 % des cas. Dans les sommaires de congé non structurés, les déclarations étaient beaucoup plus faibles (16 % des cas). Le délire était plus susceptible d'être déclaré chez les femmes que chez les hommes quand il était plus grave ou qu'il était la principale raison de l'hospitalisation que lorsqu'il se produisait durant une hospitalisation pour une autre raison.

Conclusions : Les épisodes de délire qui se produisent durant une période d'hospitalisation pour le traitement de toute affection médicale sont sous-déclarés, même s'ils sont spécifiquement diagnostiqués. Les sommaires de congé structurés tendent à accroître le taux de déclaration.