Delirium in Advanced Cancer: Screening for the Incidence on Admission to an Inpatient Hospice Unit

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Abstract

Background: Delirium is a common underdiagnosed condition in advanced cancer leading to increased distress, morbidity, and mortality. Screening improves detection but there is no consensus as to the best screening tool to use with patients with advanced cancer.

Objective: To determine the incidence of delirium in patients with advanced cancer within 72 hours of admission to an acute inpatient hospice using clinical judgement and validated screening tools.

Method: One hundred consecutive patients with advanced cancer were invited to be screened for delirium within 72 hours of admission to an acute inpatient hospice unit. Two validated tools were used, the Delirium Rating Scale-Revised 98 (DRS-R-98) and the Confusion Assessment Method (CAM) shortened diagnostic algorithm. These results were compared with clinical assessment by review of medical charts.

Results: Of 100 consecutive admissions 51 participated and of these 22 (43.1%) screened positive for delirium with CAM and/or DRS-R-98 compared to 15 (29.4%) by clinical assessment. Eleven (21.6%) were identified as hypoactive delirium and 5 (9.8%) as subsyndromal delirium. *Conclusion:* This study confirms that delirium is a common condition in patients with advanced cancer. While there remains a lack of consensus regarding the choice of delirium screening tool this study supports the CAM as being appropriate. Further research may determine the optimal screening tool for delirium enabling the development of best practice clinical guidelines for routine medical practice.

Introduction

DELIRIUM IS A COMMON,[1–3] serious,[4] often under-recognized[5] and undertreated condition in patients with advanced cancer resulting in increased morbidity and mortality.[6,7] It has been estimated that 50% of patients with delirium have a reversible cause[8] making early and accurate diagnosis imperative[9] for improving patient outcomes and the caregiving experience.

The fluctuation and subjectivity of symptoms can make delirium difficult to recognize, especially the hypoactive–hypoalert subtype.[10] Subsyndromal delirium (SSD) has been characterized by acute, fluctuating symptoms falling on a continuum between no delirium and full delirium[11] potentially leaving these patients at risk of developing a full syndromal delirium with a poor prognosis.[12]

While screening improves detection[13] there is no consensus as to the best tool[3,14] to use. Most screening tools are promising with regard to reliability and validity, however, only a small number are considered to be robust and clinically useable in palliative care. The tools currently validated for use in palliative care include the Confusion Assessment Method (CAM) Instrument and its shorter diagnostic algorithm[15,16] and the Delirium Rating Scale and its revised version (DRS and DRS-R-98).[17]

The purpose of this study was to determine the incidence of delirium within 72 hours of admission to an acute inpatient hospice unit, in patients with advanced cancer and to determine if the use of a validated screening tool increased the recognition of delirium.

Method

Ethics

Human Research Ethics Approval was obtained for the study. For the purpose of this study, patients with a known

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preexisting dementia or comorbid psychiatric disorder and non-English–speaking patients were excluded.

Written information was provided to the patient prior to obtaining written consent. Where a patient had a cognitive impairment and was not capable of giving consent, consent was acquired from either the enduring power of attorney or the next of kin as identified on admission records.

All positive screens were reported to the treating medical team so appropriate management could be implemented.

Procedure

Patients over the age of 18 years with a diagnosis of advanced cancer admitted to a 19-bed acute inpatient specialist palliative care unit between February 2013 and June 2013 were eligible to participate. Within 72 hours of admission, 100 consecutive patients were invited to be screened using the DRS-R-98 and the shortened CAM. The investigator, who had extensive clinician experience including mental health skills training, was not the admitting officer or a member of the treating team.

On completion of screening, patient electronic medical records were audited to determine if the treating medical team had recognized and documented the presence of delirium. These records contained medical history and physical examination findings, nursing assessments, and multidisciplinary team progress notes. The criteria used to recognize delirium was a written diagnosis of ''delirium'' or symptoms listed that correlated to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text revision* (*DSM-IV*-TR)[18] guidelines, e.g., acute confusion within 72 hours of admission or if a prescription of the antipsychotic haloperidol (drug of first choice) or olanzapine were prescribed where it was known these drugs were not prescribed for other reasons. Data regarding demographic elements, primary diagnosis, performance status, and disease trajectory phase were collected for each patient.

Screening tools

The DRS-R-98 is a 16-item tool with a maximum total score of 46. For a diagnosis of delirium the 3 diagnostic items (14–16) must be satisfied and, as recommended by the original validation study, a severity score of 15 or more or a total score of 18 or more (92% sensitivity and 93% specificity) is required,[17] although a total score of 13 or more[11,19] has been suggested. For the purpose of this study the lower cutoff has been used to allow for detection of SSD using a total score of 8–13.[11,20]

Shortened CAM is a brief (less than 5 minutes) observational tool (94%–100% sensitivity and 90–95% specificity[15]) consisting of four questions that can be completed by the patient, carer or staff. For a diagnosis of delirium, features 1 (acute onset and fluctuating course) and 2 (inattention) must be present along with either feature 3 (disorganized thinking) or 4 (altered level of consciousness).

Statistical analysis

Data were analyzed using SPSS-20 (SPSS Inc., Armonk, NY). Descriptive statistics were used to report the percentage of patients whose assessments indicated the presence of delirium and the demographic characteristics of participants. χ^2 analysis was used to examine differences in gender, diagnosis and reason for admission between patients presenting with delirium and those who did not.

Results

The use of one researcher increased consistency in applying the tool, however, it was not possible to access all admissions within 72 hours. Of the 100 consecutive admissions 51 patients were screened, 9 refused, and 40 were excluded including 10 patients considered ''too unwell'' to be approached based on the clinical judgement of either the treating team or investigator (Table 1). In comparison, 9 patients who refused did so for a variety of reasons such as ''I'm not interested,'' ''I'm too tired,'' or ''I'm not confused.''

Of the 51 patients screened 22 (43.1%) met the criteria for delirium on the DRS-R-98 and/or CAM with 20 (39.2%) patients recording a positive result on both tools. Five (9.8%) patients fulfilled the criteria for subsyndromal delirium having symptoms less severe than those with full delirium. No significant differences in gender, diagnosis or reason for admission were found between those who screened positively for delirium and those who did not. Clinical and demographic characteristics are shown in Table 2 and comparative results of the different screening methods in Table 3.

To fulfill the diagnostic criteria of delirium all patients with a positive result on the CAM had acute and fluctuating changes in mental status and difficulty focusing attention. Twelve patients (57.1%) had disorganized or incoherent thinking and 17 (81%) had altered levels of consciousness.

Among the various symptoms present, all patients with full or subsyndromal delirium on DRS-R-98 had acute and fluctuating symptoms including similar severity of sleep-wake cycle disturbance (60% had a severity score ≥ 2). Ninety-five percent of patients with full delirium had disturbances in attention compared to 60% with subsyndromal delirium. Other common symptoms seen in full delirium compared to subsyndromal included disturbances in thought processes (76.2% versus 20%), delusions and hallucinations (59.5% versus 30%), and memory disturbance (64.25% versus 20%). Where symptoms were present, the severity in the SSD group was consistently less than in full delirium.

Of the 21 patients with a positive DRS-R-98 result based on motor agitation/retardation, 11 (52.4%) were classified as having hypoactive delirium and 3 (14.3%) with hyperactive subtype. The treating team recognized delirium in 15 (29.4%) patients, including all 3 with hyperactive delirium and 6 (54.5%) with hypoactive delirium but none with subsyndromal delirium.

Two patients with discordant CAM and DRS-R-98 results demonstrated acute and fluctuating changes in mental status. The patient with a positive CAM and negative DRS-R-98 (score of 12) had very mild symptoms suggesting subsyndromal

TABLE 1. REASONS FOR NONPARTICIPATION IN DELIRIUM SCREENING

Reason for not participating	n = 49	%
Too unwell[a]	10	20.4
Refused[b]	9	18.4
Unresponsive	9	18.4
Exceeded 72-hour limit	9	18.4
Died/discharge before screened	5	10.2
Dementia	4	8.1
Non-English speaking	3	6.1

[a]Decision made by nursing or medical teams.
[b]Decision made by patient or proxy.

TABLE 2. DEMOGRAPHIC CHARACTERISTICS OF SCREENED PATIENTS

Demographic	Delirium detected n = 22	Delirium absent n = 29
Age	Mean = 70.1 years (SD, 13.8; range, 32–89 years)	Mean = 71.3 years (SD, 13.9; range, 44–92 years)
Gender		
Female	13 (59.1%)	19 (65.5%)
Male	9 (40.9%)	10 (34.5%)
Cancer diagnosis		
Breast	6 (27.3%)	5 (17.2%)
Lung	4 (18.2%)	2 (6.9%)
Gynecologic	3 (13.7%)	2 (6.9%)
Colorectal	1 (4.5%)	6 (20.7%)
Other GIT	3 (13.7%)	7 (24.1%)
Head and neck	1 (4.5%)	2 (6.9%)
Brain (GBM)	2 (9.1%)	2 (6.9%)
Prostate	1 (4.5%)	—
Melanoma	1 (4.5%)	—
Hematologic	—	2 (6.9%)
Neuroendocrine	—	1 (3.5%)
Brain metastases		
Present	6 (27.3%)	2 (6.9%)
Reason for admission		
End-of-life care	9 (40.9%)	10 (34.5%)
Symptom management	13 (59.1%)	15 (51.7%)
Respite	—	4 (13.8%)
Disease trajectory		
Stable	1 (4.5%)	11 (37.9%)
Unstable	8 (36.4%)	11 (37.9%)
Deteriorating	11 (50%)	4 (13.8%)
Terminal	2 (9.1%)	3 (10.4%)
Pain score/10	Mean = 3.4 (SD, 2.5; range, 0–8)	Mean = 3.3 (SD, 2.6; range, 0–10)
Australian modified Karnofsky Performance Score	Mean = 35.9 (SD, 10.9; range, 20–60)	Mean = 42.4 (SD, 12.4; range, 20–70)

SD, standard deviation; GIT, gastrointestinal tract; GBM, glioblastoma multiforme.

TABLE 3. COMPARATIVE RESULTS OF SCREENING METHODS

n = 51	DRS-98-R	CAM[a]	Clinical
Positive screen	21 (41.2%)	21 (41.2%)	15 (29.4%)
	Mean score: 17.64 SD, 3.8; range, 13–27.5		
Negative screen	30 (58.8%)	36 (70.6%)	30 (58.8%)
	Mean score: 3.9 SD, 3.6; range, 0–12		
SSD[b]	5 (9.8%)		
	Mean score: 10.6	1/5 detected	0/5 recognized
	SD, 1.95; range, 8–12		
Hyperactive delirium[b]	3 (5.9%)		
	Mean score:24.7	3/3 detected	3/3 recognized
	SD, 3.3; range, 21–27.5		
Hypoactive delirium[b]	11 (21.6%)		
	Mean score 16.9	11/11 detected	6/11 recognized
	SD, 2.5; range, 13–21		

[a]CAM results only indicate the presence or absence of delirium.
[b]Detected by DRS-R-98.
DRS-98-R, Delirium Rating Scale-Revised 98; CAM, Confusion Assessment Method; SD, standard deviation; SSD, subsyndromal delirium.

delirium. The other patient, with a positive DRS-R-98 (score of 13) and negative CAM reported hallucinations and delusions, sleep disturbance, and lability of affect but on screening was alert and displayed no problems focusing attention.

On occasions when screening was positive in the absence of a documented medical diagnosis one patient was noted to be "alert and orientated," another "drowsy." A third patient was identified to the medical team as having a positive result. Subsequent review of medical notes showed a night nursing entry as "confused overnight." He was subsequently diagnosed with hypercalcemia. In this case the screening test detected an evolving delirium before it was recognized by the treating team.

Families of three unresponsive patients consented to participate and while the DRS-R-98 was not used, completion of the CAM and medical record audit showed a positive result for delirium in the preceding 24 hours. These data were excluded from the final analysis because it was incomplete.

Discussion

Delirium is a common condition in patients with advanced cancer and the results of this study were consistent with the literature.[3] In this study, based on clinical judgment alone the incidence of delirium on admission to the hospice was 29.4% increasing to 43.1% when a validated screening tool was applied. The clinical recognition rate is consistent with a previous audit of 94 medical charts undertaken in 2012 in the same setting using the same criteria in which 29 (30.9%) patients were found to have a clinical diagnosis of delirium.

Results demonstrated the treating team recognized all patients with hyperactive delirium, however, they failed to recognize 45.5% of those with hypoactive subtype and all with subsyndromal delirium. These results reflect current practice of palliative care clinicians in this setting with respect to delirium diagnosis and support the view that delirium, in particular hypoactive delirium, is often missed or mistaken for other conditions especially depression.

The DRS-R-98 was chosen for its ability to classify the severity and subtypes of delirium when screening patients. However, there were a number of difficulties using the DRS-R-98 resulting in incomplete data collection. Two patients were partially blind and immobile, preventing the assessment of visuospatial ability. This did not affect one patient's score, however, the other patient's score was borderline, demonstrating inconsistencies in assessment.

The DRS-R-98 as a screening tool did classify most patients (66.7%) into hyperactive or hypoactive subtype, however, it was limited by its complexity and time taken to complete adding to the burden of care, without any screening benefit. In contrast, the brevity of the CAM enhanced its utility as a screening tool and while there was an element of subjectivity in the assessment scoring the data collected indicated it to be equally reliable in detecting both florid hyperactive delirium and hypoactive delirium in the quiet, sleepy, compliant patient.

While clinical judgment in this setting is sound, screening was clinically relevant for individual patients as it resulted in a change in management plans as demonstrated by the cases of discrepancy between screening results and documentation.

The literature suggests the incidence of delirium is highest in the terminal phase of illness[8] but consent to screen these frail patients was often withheld. This limitation, along with small sample size and a single center study, hampers the generalizability of results as the participants were not necessarily representative of all patients with advanced cancer admitted to inpatient hospice settings. Future studies on delirium may benefit from integrating screening into standard practice to avert any issues of gatekeeping.

In conclusion, this study confirms that delirium is a common condition in patients with advanced cancer. While a lack of consensus regarding the choice of delirium screening tool remains, this study supports the CAM as being appropriate. However, while screening is helpful, the results must be interpreted within a clinical context and screening tools should always complement clinical judgment rather than replace it. Further research may determine the optimal screening tool for delirium enabling the development of best practice clinical guidelines for routine medical practice.

Acknowledgments

Author Disclosure Statement

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