

Original Article

Cite this article: Uchida M, Akechi T, Morita T, Shima Y, Igarashi N, Miyashita M, J-HOPE group (2021). Development and validation of the Terminal Delirium-Related Distress Scale to assess irreversible terminal delirium. *Palliative and Supportive Care* **19**, 287–293. <https://doi.org/10.1017/S1478951520001340>

Received: 24 July 2020

Revised: 30 November 2020



Accepted: 5 December 2020

Key words:

Cancer; Delirium; End of life; Palliative care; Terminal delirium

Author for correspondence: Megumi Uchida, Department of Psychiatry and Cognitive-Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences, Mizuho-cho, Mizuho-ku, Nagoya, Aichi 467-8601, Japan. E-mail: ucmegumi@na.rim.or.jp

Development and validation of the Terminal Delirium-Related Distress Scale to assess irreversible terminal delirium

Megumi Uchida, M.D., PH.D.^{1,2} , Tatsuo Akechi, M.D., PH.D.^{1,2}, Tatsuya Morita, M.D.³, Yasuo Shima, M.D.⁴, Naoko Igarashi, R.N., P.H.N.⁵ , Mitsunori Miyashita, R.N., P.H.N., PH.D.⁵ and J-HOPE group¹

¹Department of Psychiatry and Cognitive-Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; ²Division of Palliative Care and Psycho-oncology, Nagoya City University Hospital, Nagoya, Japan; ³Department of Palliative and Supportive Care, Palliative Care Team and Seirei Hospice, Seirei Mikatahara General Hospital, Hamamatsu, Japan; ⁴Department of Palliative Medicine, Tsukuba Medical Center Hospital, Tsukuba, Japan and ⁵Department of Palliative Nursing, Health Sciences, Tohoku University Graduate School of Medicine, Sendai, Japan

Abstract

Objective. There is no tool to appropriately assess terminal delirium, including the natural terminal course. The objective of this study was to develop an evaluation scale to assess distress from irreversible terminal delirium and to examine the validity of the scale.

Method. Based on previous qualitative analysis and systematic literature searches, we carried out a survey regarding the views of bereaved families and developed a questionnaire. We extracted items that bereaved families regarded as important and constructed an evaluation scale of terminal delirium. Then, we applied the questionnaire in a cross-sectional questionnaire survey of bereaved relatives of cancer patients who were admitted to a hospice or a palliative care unit.

Results. We developed the Terminal Delirium-Related Distress Scale (TDDS), a 24 item questionnaire consisting of five subscales (support for families and respect for a patient, ability to communicate, hallucinations and delusions, adequate information about the treatment of delirium, and agitation and restlessness). Two hundred and eighty-one bereaved relatives participated in the validation phase. The construct validity was shown to be good by repeated factor analysis. Convergent validity, confirmed by the correlation between the TDDS and the Care Evaluation Scale ($r = 0.651$, $P < 0.001$), was also good. The TDDS had good internal consistency (Cronbach's alpha coefficient for all 24 items = 0.84).

Significance of results. This study showed that the TDDS is a valid and feasible measure of irreversible terminal delirium.

Introduction

About 90% of cancer patients in the terminal phase have delirium (Breitbart and Strout, 2000; Lawlor et al., 2000; Morita et al., 2001; Hosie et al., 2013; Lawlor and Bush, 2015), and 50–70% of them die without recovering from delirium (Leonard et al., 2008; de la Cruz et al., 2015). Terminal delirium is defined as the occurrence of delirium in the dying phase, where reversal is unlikely (Bush et al., 2014). Delirium is a burden not only to the patients but also to their family and the medical staff (Cohen et al., 2009; Kerr et al., 2013; Partridge et al., 2013; Finucane et al., 2017). In particular, terminal delirium has a strong impact on important decisions about how to end one's life (Goswami et al., 2020). In addition, if patients develop terminal delirium, communication between the patients and medical staff becomes difficult (Lawlor and Bush, 2015), and it places a great burden on a family member who becomes a proxy decision maker (Sweet et al., 2014).

In the dying process, most patients experience a decreased level of consciousness (Raus et al., 2012) and have difficulty in communication as part of the natural course. However, we sometimes consider palliative sedation when patients have continuous distress and/or severe agitated delirium in the terminal phase (Maltoni et al., 2012; Parra Palacio et al., 2018). It becomes challenging to evaluate delirium and cognitive function when patients are sedated or have a decreased level of consciousness (Hui, 2018). In this situation, it is difficult to assess delirium with the existing delirium assessment tool, which was developed to assess reversible delirium and is often used in daily clinical practice.

In addition, although we think about the overall management of delirium based on the patients' estimated prognosis and the values of their family (Lawlor and Bush, 2015), there is no consensus on the treatment and care of terminal delirium, both domestically and

internationally. To provide the most appropriate treatment and care for terminal delirium, it is necessary to establish an assessment tool to evaluate terminal delirium. Furthermore, when we evaluate patients in the terminal phase, the balance between the burden on patients and an accurate evaluation is also important (Uchida et al., 2018). Therefore, we developed an assessment tool to evaluate terminal delirium, targeted toward the people around the patients. The aims of this study were to develop an evaluation scale to assess distress from irreversible terminal delirium and to examine its validity.

Methods

This study was part of a nationwide self-reported questionnaire survey of bereaved family members of patients with cancer who died in 76 hospices/palliative care units certified by Hospice Palliative Care Japan. The questionnaire was sent to the bereaved family members from each participating institution in May 2016 along with a letter explaining the survey. Participants were asked to return the completed questionnaire within two weeks, with a reminder to non-responders after 1 month. We sent the same mail to non-responders again in June 2016.

Subjects

The study subjects were adult bereaved family members of adult patients with cancer who died in participating inpatient hospices from November 2013 to January 2016. Cases were excluded if family members could not be identified, if the primary physician judged that a potential participant may have serious psychological distress, or if a potential participant was incapable of answering the self-completed questionnaire because of cognitive impairment or visual disability. In addition, as this study was originally a quality improvement project using feedback from bereaved families, the families of the patients who used inpatient hospices for fewer than three days were excluded on the assumption that they could not precisely rate the quality of care they received.

Outline of the study

This study was composed of two steps: scale development and validation.

(1) Development of the Terminal Delirium-Related Distress Scale (TDDS)

We conducted interviews with healthcare professionals engaged in the treatment of terminally ill cancer patients to explore treatment goals in irreversible terminal delirium for patients and their families. Based on this qualitative analysis (Uchida et al., 2018) and systematic literature searches, we designed a questionnaire and then carried out a questionnaire survey regarding the views of bereaved families about treatment goals in terminal delirium. We extracted the items that bereaved families regarded as important and developed an evaluation scale of terminal delirium. The draft TDDS consists of 25 items.

(2) Validation of the TDDS

We conducted a cross-sectional, self-completed questionnaire survey for bereaved relatives of cancer patients who were admitted to a hospice or a palliative care unit. The development of the

TDDS was based on factor analysis. The validity and reliability of this scale were investigated by evaluating its (1) construct validity, (2) convergent validity, (3) discriminant validity, (4) concurrent validity, and (5) internal consistency.

Measures

Good Death Inventory-short version (Miyashita et al., 2008)

We used the short version of the Good Death Inventory (GDI) to evaluate the patients' achievement of a good death from the bereaved family member's perspective. The original version of the GDI consists of 10 core domains, 8 optional domains, and 54 attributes. The 10 core domains (environmental comfort, life completion, dying in a favorite place, maintaining hope and pleasure, independence, physical and psychological comfort, a good relationship with medical staff, not being a burden to others, a good relationship with family, and being respected as an individual) measure the attributes that Japanese consistently regard as important, and the 8 optional domains (religious and spiritual comfort, receiving enough treatment, control over the future, feeling that one's life is worth living, unawareness of death, pride and beauty, natural death, and preparation for death) measure attributes that are regarded as important by some, based on individual values. The short version of the GDI is composed of 18 representative items from each domain, and the validity and reliability of the scale have been confirmed. Participants evaluate each item using a seven-point Likert scale (1: absolutely disagree, 2: disagree, 3: somewhat disagree, 4: unsure, 5: somewhat agree, 6: agree, and 7: absolutely agree). The total score is calculated by summing the scores for all attributes, with a high total score indicating the achievement of a good death.

Care Evaluation Scale-short version (Miyashita et al., 2017)

We used the revised short version of the Care Evaluation Scale (CES2) in the current study. The Care Evaluation Scale (CES; Morita et al., 2004) was developed to evaluate end-of-life care from the perspective of bereaved family members, with a focus on the structure and process of care. The original version of the CES was comprised of 28 items with 10 subscales: physical care by physicians, physical care by nurses, psycho-existential care, help with decision making for patients, help with decision making for the family, environment, family burden, cost, availability, and coordination/consistency. The questions were designed, so that the respondents evaluated the necessity for improvement for each item on a six-point Likert-type scale from "improvement is not necessary (1)" to "highly necessary (6)." The total score is transferred to a 100-point scale, with higher scores indicating better care. The short version of the CES is composed of 10 representative items from each domain, and the validity and reliability of the scale have been confirmed.

Delirium Experience Questionnaire distress score by the bereaved family

The Delirium Experience Questionnaire (DEQ; Breitbart et al., 2002) was developed to assess recall of the delirium experience and the degree of distress related to the delirium episode among patients, spouses/caregivers, and nurses. It asks six questions of patients who have recovered from an episode of delirium. In addition, spouse/caregivers and nurses are each asked a single question. In this study, we used this question to ask the spouse/caregiver "How distressed were you during the patient's delirium? 0–4 NRS."

Terminal Delirium- Related Distress Scale

When patients were delirious, did you see any of the following?
Please circle one of the following that applies from “strongly agree”
to “strongly disagree”.

	Strongly agree	Agree	A little agree	A little disagree	Disagree	Strongly disagree
Distress of patients						
1. Patients looked distressed because of physical discomfort including pain.	1	2	3	4	5	6
2. Patients were sometimes restless.	1	2	3	4	5	6
3. Patients were sometimes excited and agitated.	1	2	3	4	5	6
4. Patients often failed to sleep well at night.	1	2	3	4	5	6
5. Patients had hallucination.	1	2	3	4	5	6
6. Patients had delusion.	1	2	3	4	5	6
Communication with patients						
7. Medical staff considered family could communicate with patients.	1	2	3	4	5	6
8. Patients were able to communicate even if delirium did not obtain complete remission.	1	2	3	4	5	6
9. Patients were able to communicate even if they took anxiolytic or hypnotic.	1	2	3	4	5	6
10. Patients continued to be what the patient was.	1	2	3	4	5	6
11. Medical staff respected the patient's subjective world even if they spoke incoherently.	1	2	3	4	5	6
12. Medical staff understood patients' backgrounds.	1	2	3	4	5	6
Support and explanation of medical staffs						
13. Medical staff provided psychological support for family.	1	2	3	4	5	6
14. Medical staff ensured patients are not too heavy a burden on families.	1	2	3	4	5	6
15. Medical staff taught families what they could do for patients.	1	2	3	4	5	6
16. Medical staff was present with family when they felt uneasy.	1	2	3	4	5	6
17. Medical staff responded promptly as needed.	1	2	3	4	5	6
18. Medical staff fully treated the cause of delirium.	1	2	3	4	5	6
19. Family could receive adequate explanations regarding patient's expected course and care plans.	1	2	3	4	5	6
20. Family could discuss patient care plan adequately.	1	2	3	4	5	6
21. Families received adequate explanations regarding delirium and the situation of patients from health-care professionals.	1	2	3	4	5	6
22. Medical staff facilitated preparations for the patient's death.	1	2	3	4	5	6
Dying a natural death						
23. Patients died a natural death.	1	2	3	4	5	6
24. Patients were not physically restrained nor connected to tubes.	1	2	3	4	5	6

Fig. 1. Terminal delirium- related distress scale.

Statistical methods

We developed the TDDS by factor analysis of the draft items followed by varimax rotation. The number of factors was identified by the Scree test. The construct validity was examined based on whether repeating the factor analysis reproduced the factor loading pattern that was seen in the scale development phase. The convergent validity was examined by calculating Pearson's correlations between the TDDS scores and the CES and the GDS scores. The discriminant validity was examined by calculating Pearson's correlations between the TDDS scores and the DEQ distress score of the bereaved family. For internal consistency, we calculated Cronbach's alpha coefficient. All statistical analyses were conducted with SPSS statistical software (version 22; IBM Corporation, Armonk, NY).

Results

Development of the TDDS

We developed a 25-item draft questionnaire. The responses to it were evaluated by factor analysis followed by varimax rotation. Six factors were identified by the Scree test. The factor that included only one item was then deleted. The first subscale consisted of 8 items related to support for family and esteem for the patient; we called it the subscale of support for families and respecting the patient. The second subscale consisted of 3 items related to communication; we called it the subscale of the ability to communicate. The third subscale consisted of 2 items related to hallucinations and delusions; we called of the subscale of hallucinations and delusions. The fourth subscale consisted of 7 items that explained delirium and dying naturally; we called it the subscale of adequate information about the treatment of delirium. The fifth subscale was composed of 4 items that were related to comfort; we called it the subscale of agitation and restlessness. An English version of the complete scale is presented in Figure 1.

Validation of TDDS

Five hundred and ninety-three of 787 (75%) bereaved family members returned the survey, and 513 (65%) completed the survey. Two hundred and eighty-one bereaved (55% of the responders) answered that their patients had experienced delirium, even if only a little. The characteristics of the participants are shown in Table 1.

Validity

(a) Construct validity

The results of the factor analysis are shown in Table 2. The construct validity was shown to be good by repeated factor analysis.

(b) Convergent validity and discriminant validity (Table 3)

Convergent validity, confirmed by the correlation between the TDDS and the CES ($r=0.62$, $P<0.001$) and the GDI ($r=-0.57$, $P<0.001$), was good. Discriminant validity was confirmed by a poor correlation between the TDDS and the distress score of the bereaved family member on the DEQ ($r=0.30$, $P<0.001$).

(c) Reliability (Table 4)

The TDDS had good internal consistency (Cronbach's alpha coefficient for all 24 items = 0.84).

Table 1. Bereaved families' and patients' characteristics ($N=281$)

Bereaved family	<i>N</i>	%
Age		
Mean	39.3y (SD: 12.4)	
Median	59y (range: 22–90)	
Sex		
Female	184	66
Relation to the deceased		
Spouse	110	39
Child	128	46
Son-in-law · Daughter-in-law	17	6
Parent	4	1
Sibling	16	6
other	5	2
Education		
≥12 years	135	48
Religion		
No religion	114	41
Buddhism	135	48
Christian	7	3
Shinto	7	3
other	12	4
Patient		
<i>N</i>		
Age		
Mean	74.8y (SD: 11.6)	
Mean	75y (Range: 30–100)	
Sex		
Male	152	54
Marital status		
Married/partnered	168	60
unmarried	16	6
Bereaved	73	26
Divorced	20	7
Original cancer site		
Lung	56	20
Stomach	31	11
Colon	27	10
Pancreas	22	8
Liver	19	7
Breast	14	5
Gallbladder · Biliary duct	14	5
Rectum	11	4
Esophagus	11	4
Head and neck	10	4
Uterus	10	4

Table 2. Factor validity of the terminal delirium distress scale, optimal five domains (N = 281)

	Factor				
	Support for families and respect for a patient	Ability to communicate	Hallucination and delusion	Adequate information about treatment for delirium	Agitation and restlessness
14. Consideration was given not to make caring a patient too heavy a burden on families.	0.96	-0.05	0.03	0.1	0.04
13. Medical staff provided emotional support for family.	0.84	-0.04	-0.007	-0.05	0.07
17. Medical staff responded promptly as needed.	0.8	-0.04	-0.044	-0.17	0.005
16. Medical staff was present with family when they felt uneasy.	0.76	0.05	-0.042	-0.15	-0.002
15. Medical staff coached families what they could do for patients.	0.71	-0.03	-0.032	-0.2	0.06
7. Medical staff made an effort, so that family could communicate with patients.	0.57	0.24	-0.057	0.12	-0.07
11. Medical staff respected the patient's subjective world even if they spoke incoherently.	0.57	0.1	0	-0.22	-0.07
12. Medical staff understood and respected what the patient was.	0.55	0.09	-0.05	-0.06	-0.05
9. Patients were able to communicate even if they took anxiolytic or hypnotic.	-0.07	0.87	0.008	-0.17	0.02
8. Patients were able to communicate even if delirium did not obtain complete remission.	0.13	0.87	-0.03	0.09	-0.03
10. There were verbal or nonverbal interaction like that person.	0.05	0.83	0.04	-0.06	-0.06
6. Patients had delusion. ^a	-0.005	0.002	0.96	-0.003	-0.05
5. Patients had hallucination. ^a	-0.08	0.009	0.716	0.009	0.08
20. Family could sufficiently discuss about the treatment plan with healthcare professionals.	0.05	0.08	-0.09	-0.85	0.1
19. Healthcare professional explained adequately about the treatment plan and future perspective.	0.09	0.06	-0.07	-0.85	0.11
21. Healthcare professional explained adequately about the nature of delirium and reasons why the delirium occurred.	0.08	0.16	0.06	-0.77	-0.07
22. Medical staff facilitated preparations for the patient's death.	0.29	0.03	-0.08	-0.53	-0.01
18. I feel healthcare professionals made maximum efforts to treat delirium.	0.39	0.06	-0.09	-0.44	-0.03
23. Patients died a natural death.	0.25	-0.01	0.02	-0.36	-0.13
24. Patients were not physically restrained.	0.12	-0.14	0.09	-0.17	-0.13
2. Patients were restless. ^a	0.09	-0.005	-0.05	-0.04	0.88
3. Patients were excited and agitated. ^a	-0.06	-0.03	0.27	-0.05	0.61
1. Patients looked distressed because of physical discomfort such as pain. ^a	-0.05	-0.06	-0.15	-0.04	0.56
4. Patients were not able to sleep well at night. ^a	0.06	0.03	0.23	0.09	0.5

^aReverse item.

Discussion

The present study described the development and validation of the TDDS. This is the first assessment tool that targets irreversible terminal delirium. It might be better to ask patients about their treatment and care during terminal delirium. However, in the clinical situation, most patients who are in a state of terminal

delirium have difficulty in responding to questionnaires because of their distressing cognitive, physical, and psychological symptoms. Therefore, in this study, we asked bereaved family members instead. It is hard to decide who is the best target person (the patients themselves? family members? medical staff?) to ask about the treatment and care of patients in terminal delirium.

Table 3. Correlation between terminal delirium related distress scale and CES-DEQ

Subscale	CES	GDI	DEQ
Support for families and respect for a patient	0.67	-0.46	0.09
Ability to communicate	0.06	-0.23	0.27
Hallucination and delusion	0.28	-0.33	0.3
Adequate information about treatment for delirium	0.64	-0.52	0.11
Agitation and restlessness	0.1	-0.25	0.42
Total score	0.62	-0.57	0.3

CES, Care Evaluation Scale.

GDI, Good Death Inventory.

DEQ, Distress score of bereaved family in Delirium Experience Questionnaire.

The bold value indicates $P < 0.001$.**Table 4.** Reliability of terminal delirium related distress scale

Subscale	Mean	SD	Cronbach's α
Support for families and respect for a patient	18	6.5	0.93
Ability to communicate	8	2.4	0.9
Hallucination and delusion	7.6	3.2	0.83
Adequate information about treatment for delirium	13.3	5.2	0.87
Agitation and restlessness	14.7	4.1	0.74
Total score	61.9	15.2	0.91

SD, standard deviation.

Terminal delirium often cooccurs with various states of physical distress, such as severe pain, difficulties in breathing, and multi-organ failure. It is certainly difficult for family members and maybe for medical staff to discriminate them completely from the delirium. To measure the distress related to delirium specifically, we asked the respondents to rate the situation related to the delirium with this assessment tool.

The factor analysis confirmed the structure of the scale. The analysis also indicated that appropriate treatment and care of terminal delirium consists of five dimensions (support for families and respect for a patient, ability to communicate, hallucinations and delusions, adequate information about the treatment of delirium, and agitation and restlessness). Although the assessment tools for treatable reversible delirium mainly target cognitive function and psychiatric symptoms, this scale included the other four subscales (support for families and esteeming a patient highly, ability to communicate, adequate explanation of treatment and care for delirium and dying in a natural way, and generally at peace and secure). This is feasible because this scale includes the special situation of terminal delirium, in that delirium is a natural dying process and that sedation is needed to alleviate the patient's distress.

One item was used for two factors. Item 24 "Patients were not physically restrained nor connected to tubes" was loaded a little heavier on the "Adequate explanation of treatment and care for delirium and dying in a natural way" subscale than on the

"Generally at peace and secure" subscale. The meanings of "Dying in a natural way" and "Generally at peace and secure" are close, and we thought this was why one item could be loaded for two factors.

We did not delete the items for which the factor loading was relatively small as we plan to conduct research in the future targeting the medical staff, who may have another viewpoint.

The convergent validity was shown by significant correlations between the three subscales of the TDDS and the CES. The subscale of "Support for families and esteeming a patient highly" and "Adequate explanation of treatment and care for delirium and dying in a natural way" were moderately correlated with the CES total score. This was because these two subscales are related to the structure and process of care, which the CES assessed. The subscales of "Ability to communicate" and "Agitation and restlessness" were not significantly correlated with the CES because they are about relationships between the patients and the bereaved family members rather than the structure and process of care.

The convergent validity was also shown by significant correlations between the five subscales of the terminal delirium scale and the GDI. The subscales of "Support for families and respect for a patient" and "Adequate information about treatment for delirium" were moderately correlated to the GDI total score. This was because the content of these two subscales is necessary to achieve a good death. The subscales of "Ability to communicate," "Hallucinations and delusions," and "Agitation and restlessness" were only slightly correlated with the GDI total score. This was because the GDI-short version does not include items about communication and psychiatric symptoms.

Discriminant validity was shown by significant correlations between two subscales of the TDDS and the DEQ. The DEQ assesses the degree of distress related to a reversible delirium episode and just includes the distress from psychiatric symptoms such as disorientation, hallucinations, and agitation. In our measurement, there was a moderate correlation of the subscales of "Hallucinations and delusions" and "Agitation and restlessness" with the DEQ (Table 3). There was no correlation of the DEQ with the other subscales about the information giving and care from healthcare professionals, but these subscales were moderately correlated with the CES, i.e., a measure to quantify the degree to which families rated the care quality. We believe these findings demonstrated the concurrent validity of this measure.

Each of the five subscales and the total score of the TDDS showed high internal consistency. We did not try to measure test-retest reliability since we asked the bereaved family member to answer the survey only once, considering their burden.

There are some limitations. First, the response rate was 65%. We do not think this is a fatal flaw since bereaved family members whose patient had delirium could still be included. Second, there may be a recall bias as we mailed the questionnaires to the bereaved family members instead of asking them to complete them immediately after the death of their patient. Third, the subjects were bereaved family whose patients died in a hospice or a palliative care unit. Therefore, the results of this study might not be generalizable to other settings. Fourth, we did not examine the criterion validity as there is no gold standard assessment tool for terminal delirium. Fifth, this scale has not been validated for use with medical staff. Sixth, the TDDS has 24 items and thus is a little long for use in busy clinical settings. Last, this study was only conducted in Japan, and we could not demonstrate cross-cultural validity.

In conclusion, the findings of this study indicated that the TDDS is a valid and reliable scale for evaluating five dimensions

of terminal delirium care and treatment by a bereaved family member. This scale will help medical staff to provide appropriate care and treatment for terminal delirium. We plan in the future to divide this scale into a TDDS for family members as assessed by themselves and a TDDS for the patients as assessed by medical staff.

Funding. This study was part of the Japan Hospice and Palliative Care Evaluation 2016 (J-HOPE2016) study. This study was funded by the Hospice Palliative Care Japan and JSPS KAKENHI Grant Number 16KT0001.

Compliance with ethical standards. This study was approved by all participating institutional review boards and the Ethics Committee of Tohoku University. It was conducted in accordance with the principles of the Declaration of Helsinki. When the subjects voluntarily completed and returned their questionnaire, we took this to mean they consented to this study.

Conflict of interest. The authors declare that there is no conflict of interest.

References

- Breitbart W and Strout D (2000) Delirium in the terminally ill. *Clin Geriatr Med* 16(2), 357–372.
- Breitbart W, Gibson C and Tremblay A (2002) The delirium experience: Delirium recall and delirium-related distress in hospitalized patients with cancer, their spouses/caregivers, and their nurses. *Psychosomatics* 43(3), 183–194.
- Bush SH, Leonard MM, Agar M, et al. (2014) End-of-life delirium: Issues regarding recognition, optimal management, and the role of sedation in the dying phase. *J Pain Symptom Manage* 48(2), 215–230.
- Cohen MZ, Pace EA, Kaur G, et al. (2009) Delirium in advanced cancer leading to distress in patients and family caregivers. *J Palliat Care* 25(3), 164–171.
- de la Cruz M, Ransing V, Yennu S, et al. (2015) The frequency, characteristics, and outcomes among cancer patients with delirium admitted to an acute palliative care unit. *Oncologist* 20(12), 1425–1431.
- Finucane AM, Lugton J, Kennedy C, et al. (2017) The experiences of caregivers of patients with delirium, and their role in its management in palliative care settings: An integrative literature review. *Psychooncology* 26(3), 291–300.
- Goswami R, Moore J, Bruera E, et al. (2020) Assessment of the decision-making capacity for clinical research participation in patients with advanced cancer in the last weeks of life. *J Pain Symptom Manage* 60(2), 400–406.
- Hosie A, Davidson PM, Agar M, et al. (2013) Delirium prevalence, incidence, and implications for screening in specialist palliative care inpatient settings: A systematic review. *Palliat Med* 27(6), 486–498.
- Hui D (2018) Benzodiazepines for agitation in patients with delirium: Selecting the right patient, right time, and right indication. *Curr Opin Support Palliat Care* 12(4), 489–494.
- Kerr CW, Donnelly JP, Wright ST, et al. (2013) Progression of delirium in advanced illness: A multivariate model of caregiver and clinician perspectives. *J Palliat Med* 16(7), 768–773.
- Lawlor PG and Bush SH (2015) Delirium in patients with cancer: Assessment, impact, mechanisms and management. *Nat Rev Clin Oncol* 12(2), 77–92.
- Lawlor PG, Gagnon B, Mancini IL, et al. (2000) Occurrence, causes, and outcome of delirium in patients with advanced cancer: A prospective study. *Arch Intern Med* 160(6), 786–794.
- Leonard M, Raju B, Conroy M, et al. (2008) Reversibility of delirium in terminally ill patients and predictors of mortality. *Palliat Med* 22(7), 848–854.
- Maltoni M, Scarpi E, Rosati M, et al. (2012) Palliative sedation in end-of-life care and survival: A systematic review. *J Clin Oncol* 30(12), 1378–1383.
- Miyashita M, Morita T, Sato K, et al. (2008) Good Death Inventory: A measure for evaluating good death from the bereaved family member's perspective. *J Pain Symptom Manage* 35(5), 486–498.
- Miyashita M, Aoyama M, Nakahata M, et al. (2017) Development the Care Evaluation Scale version 2.0: A modified version of a measure for bereaved family members to evaluate the structure and process of palliative care for cancer patient. *BMC Palliat Care* 16(1), 8.
- Morita T, Tei Y, Tsunoda J, et al. (2001) Underlying pathologies and their associations with clinical features in terminal delirium of cancer patients. *J Pain Symptom Manage* 22(6), 997–1006.
- Morita T, Hirai K, Sakaguchi Y, et al. (2004) Measuring the quality of structure and process in end-of-life care from the bereaved family perspective. *J Pain Symptom Manage* 27(6), 492–501.
- Parra Palacio S, Giraldo Hoyos CE, Arias Rodriguez C, et al. (2018) Palliative sedation in advanced cancer patients hospitalized in a specialized palliative care unit. *Support Care Cancer* 26(9), 3173–3180.
- Partridge JS, Martin FC, Harari D, et al. (2013) The delirium experience: What is the effect on patients, relatives and staff and what can be done to modify this? *Int J Geriatr Psychiatry* 28(8), 804–812.
- Raus K, Sterckx S and Mortier F (2012) Continuous deep sedation at the end of life and the 'natural death' hypothesis. *Bioethics* 26(6), 329–336.
- Sweet L, Adamis D, Meagher DJ, et al. (2014) Ethical challenges and solutions regarding delirium studies in palliative care. *J Pain Symptom Manage* 48(2), 259–271.
- Uchida M, Morita T, Ito Y, et al. (2019) Goals of care and treatment in terminal delirium: A qualitative study of the views and experiences of health-care professionals caring for patients with cancer. *Palliat Support Care* 17(4), 403–408.