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Nurses' Assessment of Delirium With Underlying Dementia in End-of-Life Care

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Because of physical and metabolic changes during end of life, patients with dementia are very susceptible to develop delirium. The recognition of delirium with underlying dementia can be difficult because of their overlapping behavioral manifestations. Previous studies conducted among nurses caring for patients with delirium have shown that nurses are often not able to detect the presence of delirium using their subjective assessments. This study evaluated the nurses' ability to subjectively assess for delirium in patients with underlying dementia in end of life. Their findings were compared with the results of objective assessments performed by the researcher using Confusion Assessment Method. In 30 paired assessments, the objective and subjective assessments had the same findings. The remaining 20 paired assessments showed disagreement between the subjective and objective findings. A κ measure of agreement was performed with a result of 0.074 and a significance of $P > .05$. This finding indicates no statistically significant agreement between the subjective nursing assessment for delirium and the objective assessment using Confusion Assessment Method. Accurate nursing assessment yields appropriate nursing interventions. The findings of this study support the need for improved subjective nursing assessment for delirium in patients with dementia at the end of life.

KEY WORDS

confusion assessment method, delirium, dementia, end of life, hospice, nurses, nursing

Delirium is a cognitive disorder of an acute onset and a fluctuating course. It is manifested by impaired consciousness, attention, and perception.[1] During end of life, patients' ability to maintain their physical, emotional, and psychosocial integrity is threatened by changes caused by their terminal illnesses. Patients with underlying dementia who develop superimposed delirium are particularly vulnerable to this threat because of cognitive and physical changes associated with these conditions. The cognitive and physical changes associated with dementia are very similar to the changes patients experience with delirium, making it difficult to identify the underlying cause and appropriate treatment. Accurate nursing assessment for delirium may result in providing appropriate nursing interventions. Nursing interventions may help maintain patients' comfort, promote improved quality of life, and make the dying experience easier for patients and their families. Therefore, the purpose of this study was to identify nurses' subjective ability to assess for delirium in patients with underlying dementia during end of life by comparing nurses' findings for agreement or disagreement with the results of an objective assessment instrument, the Confusion Assessment Method (CAM).[2]

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BACKGROUND

Americans are living longer than ever before, and this increase in longevity has brought new problems to the clinical setting. For example, an increase in patients diagnosed with dementia has been identified.[3] An estimated 90% of people with dementia will develop behavioral symptoms such as aggression, disruptiveness, inability to cooperate, hypoactivity, apathy, and social withdrawal.[4] Behavioral symptoms are often challenging to patients and their families and caregivers.[4]

Many people with dementia will also develop delirium.[5] Delirium increases as people approach the end of their lives. Delirium is estimated to occur in up to 83% of people with dementia at the end of life.[5] Delirium appears to be prevalent among people who are dying, not just those with dementia. In fact, approximately 80% of patients with advanced cancer will eventually experience delirium in their final days.[6] Among all patients admitted to hospice care, 42% already suffer from delirium, and another 32% to 45% develop delirium in their last week of life.[7]

Similar cognitive deficits and behavioral symptoms associated with both delirium and dementia make it difficult to distinguish between the 2.[8] A study conducted by

Rice et al[9] showed that delirium in the presence of underlying dementia is underdiagnosed a majority of the time.[9] Patients with delirium typically exhibit acute-onset confusion that fluctuates to periods of lucidity and resolves with the treatment of the underlying cause.[10] In addition, the patient's level of consciousness becomes impaired. Patients may exhibit agitation that progresses to lethargy with a rapid clinical deterioration.[10] Medications, metabolic changes, infection, and hypoxia are among the identified causes of delirium.[11] The confusion associated with delirium is sometimes mistaken for dementia.[10] Unlike delirium, physical and cognitive changes tend to happen progressively over time with dementia.[12] The same physical and cognitive changes seen in delirium are usually evident only in the later stages of dementia.[12]

SIGNIFICANCE TO NURSING

In end-of-life care, recognizing and differentiating delirium from dementia become more complex because the physical and cognitive changes in dementia are caused by complications stemming from a terminal condition. Management approaches for these conditions also tend to be different as the focus shifts from curative to palliative care. Delirium is underrecognized by nurses, although it is common.[10] It is important for nurses to have the ability to detect delirium during end-of-life care as the goals of comfort, quality of life, and dignified death are pursued.

Because the signs and symptoms of delirium and dementia tend to overlap, nurses are often unable to identify whether they are observing complications related to dementia or delirium.[8] Delirium can be caused by potentially reversible conditions or unmet needs, such as urinary retention and constipation, and does not always require medications.[12] The management of delirium is typically geared toward addressing the underlying etiology.[12] When medications are needed, antipsychotics are the drugs of choice for delirium.[13] Terminal delirium, however, is irreversible and tends to indicate an approaching death.[13] Nurses' ability to accurately assess for terminal delirium allows them to prepare other staff and family members for impending death. Accurate nursing assessment and identification of delirium or dementia are crucial to care management; otherwise, nurses might inappropriately medicate a patient for a condition that does not warrant a pharmacologic approach. Inaccurate assessment and subsequent nursing diagnosis may result in the use of medications that can potentially cause undesirable adverse effects and unnecessary costs.

CONCEPTUAL FRAMEWORK

In the Conservation Model of Nursing, Levine claims that nursing interventions are intended to protect patients' integrity by conserving their energy, structural integrity, personal integrity, and social integrity.[14] Nurses who are considered part of the client's environment use their knowledge, skills, and compassion to maintain their client's integrity. Among Levine's assumptions are that an individual's life is constantly changing, so nursing interventions should be guided by the client's unique attributes.[14] Protecting a patient's integrity is achieved by maintaining a balance between activity and a person's energy, encouraging participation in decision making, and preservation of the patient's ability to engage with the people around him/her, including his/her family.[14] Nursing interventions are influenced by careful, ongoing observation.[14]

In this study, end of life and underlying dementia were identified as potential threats to the patients' integrity. The ability of nurses to use their subjective assessment skills to identify the presence or absence of behavioral and cognitive manifestations related to delirium and to distinguish these symptoms from those that are caused by dementia was evaluated. Accurate nursing assessment results to appropriate nursing interventions that will promote patients' integrity as described by Levine.[14]

RESEARCH QUESTION

In this study, the results of nurses' subjective assessment of delirium among patients in end-of-life care with underlying dementia were compared for agreement or disagreement with the results of objective assessments obtained using a validated assessment tool (CAM).[2] The findings of this study were analyzed to answer the research question: Are nurses able to accurately assess for delirium in patients with dementia during end of life using their subjective assessment skills?

LITERATURE REVIEW

An integrative review of the literature was performed using the keywords "delirium," "dementia," "hospice," "end-of-life," "nursing," "Confusion Assessment Method," "cancer," and "nurses." The search was initially conducted in CINAHL, PubMed, Cochrane Library, and UpToDate for literature published from January 2008 to July 2014 to find recent findings related to the research question. Journals with a focus on delirium were also hand searched for relevant articles. Medical and nursing journals were included to gain perspectives on both nursing and medical care for delirium and dementia. Because of the limited information available on the relationship between delirium and dementia in end-of-life nursing care during the initial search, another search was conducted using open-ended dates. Overall, the search yielded 36 articles. Articles that included delirium in dementia, delirium in end of life, dementia in end of life, use of the CAM in assessing for dementia, and nursing assessment

of delirium and dementia were selected for review. Articles that focused on confusion not related to dementia or delirium were excluded. A total of 4 articles met criteria for inclusion in the review.

A prospective, descriptive study that measured nurses' ability to assess for delirium was conducted in 2011 by Rice et al[9] among 170 older adult patients who were found at risk for delirium in a 541-bed tertiary care teaching facility in the southeastern United States.[9] The researchers examined the rate of agreement and disagreement between 4 researchers and a sample of 167 nurses in rating for delirium using the CAM.[9] The nurses were only able to detect delirium 25% of the time.[9] The factors identified to contribute to the nurses' failure to recognize delirium in these patients include advancing age, length of stay, dementia, and presence of hypoactive delirium.[9] The study recommended additional research on the use of clinical decision-making processes in improving recognition of delirium.[9]

This study was limited by its use of a convenience sample of medical-surgical patients with English literacy.[9] Adding to its limitations was a lengthy consent process that negatively impacted enrollment, the low incidence of delirium, and the use of the nurses' CAM documentation to indicate delirium recognition rather than validating their ability to recognize delirium-related features.[9]

Nurses' ability to recognize delirium was also examined in an observational study conducted in a single-center intensive care unit (ICU).[15] The authors measured whether bedside nurse-to-patient interactions enable the detection of delirium. All ICU patients were included except for those who did not speak English and those who were unable to follow directions.[15] Bedside nurses were asked to assess for delirium during routine patient care throughout their shift.[15] The nurses' assessment was compared with the assessment performed by a nurse who was trained to use the CAM.[15] The bedside nurses were able to identify delirium only 73% of the time.[15] Limitations of this study include a small sample size.[15] Also, the interrater reliability of the trained CAM-ICU evaluator was not determined, and the study was performed in a single site.[15]

In addition to research about CAM and nurses, a prospective observational cohort study was conducted among physicians to validate the CAM for delirium assessment in patients in the acute poststroke period by Mitasova et al.[16] A consecutive series of 129 patients admitted to the stroke unit were evaluated for delirium.[16] The researchers compared daily delirium assessments by a junior physician using the CAM-ICU to delirium assessments by delirium experts using the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.[16] The CAM-ICU demonstrated a sensitivity of 76%, a specificity of 98%, and an overall accuracy of 94%.[15] The study found that the CAM-ICU is a valid instrument in diagnosing delirium in patients with stroke.[16] The study's limitations included a dropout rate of 14.6% because of an acute decrease in consciousness or death and a follow-up rate of 54.7%.

An observational cohort study to identify the frequency of discrepancies between subjective and objective monitoring of delirium between nurses and medical students was conducted in a 31-bed cardiosurgical ICU of a university hospital.[17] Daily delirium assessments were performed subjectively by bedside nurses using their clinical impressions and objectively by medical students using the CAM for the intensive care unit.[17] When 436 paired observations were analyzed, 26% were found to have delirium using objective assessment with the CAM.[17] The nurses were able to subjectively detect delirium in only 20% of those patients.[17]

Analysis of the paired observation also revealed that the nurses subjectively assessed for delirium in 29% of patients, whereas only 20% of those paired assessments showed a finding of delirium using the objective method.[17] The researchers also found 8 patients with no objective evidence of delirium who received haloperidol and lorazepam because they were found to have delirium using the subjective method of assessment.[17] These findings indicate that using CAM to asses for delirium helped with detection.[17] It also helped identify patients who were mistaken to have delirium but did not meet the objective criteria for this condition.[17] Furthermore, the use of the CAM helped prevent the possibility of providing inappropriate nursing intervention secondary to an inappropriate nursing assessment.[17] The study is limited, however, because it was performed in a single center that consisted only of surgical patients and may not be a true representation of the general population.[17]

SYNTHESIS OF LITERATURE REVIEW

The results of these studies show suboptimal recognition of delirium by nurses. These results also indicate that assessment for delirium tends to be done by subjective observation and on the basis of prior experience as opposed to using validated tools. Studies that examined the nurses' ability to assess for delirium with underlying dementia during end-of-life care were not found. Prior research has not measured nurses' ability to assess for delirium with underlying dementia when compared with an objective assessment using the CAM. Extant research has not been found to evaluate these findings during the difficult period of end of life.

METHODS

Design

This study was designed as an instrument evaluation. The principal investigator used the CAM to objectively assess for delirium and compared the findings with the results of the nurses' subjective assessments.

Setting and Sample

This study was conducted among registered nurses (RNs) at an inpatient unit of a large health care system. The sample chosen was a convenience sample of the RNs who worked the day shift while the study was being conducted. All of the 6 RNs were asked to participate in the study and completed a combined total of 50 individual patient assessments. The 50 patient assessments served as the sample size for this study. The patients selected were a convenience sample of patients who were admitted for hospice care and also had a diagnosis of dementia. Patients admitted for any other specialty care were excluded from participating in the study. Licensed practical nurses and nursing assistants in the unit were excluded from participation.

Measures and Instruments

The CAM is a validated tool that enables nonpsychiatric clinicians to quickly assess for delirium.[2] It takes about 5 minutes to evaluate for delirium by identifying whether inattention, acute and fluctuating behavior, disorganized thinking, and altered consciousness were absent or present.[2] The presence of inattention and acute and fluctuating behavior along with either disorganized thinking or altered consciousness is diagnostic for delirium.[2] The CAM has been found to be sensitive, specific, reliable, and easy to use in such detection.[2] When validated against the comprehensive psychiatric assessments of geriatric psychiatrists in a study of 56 patients in 1990, the CAM was found to have a 94% to 100% sensitivity, 90% to 95% specificity, and high interobserver reliability.[2]

Data Collection Procedures

After obtaining approval from the institutional review board, data collection was performed. The patients' delirium status was assessed by bedside nurses using their subjective clinical impressions and by the principal investigator using the objective CAM during initial morning rounds. Daily assessments were conducted and compared based on the inclusion criteria identified until a total of 50 assessments were obtained, which took approximately 2 weeks. After the 50 assessments were obtained, they were paired and analyzed for agreement or disagreement. The nurses were asked to complete a structured questionnaire consisting of demographic questions and open-ended questions on the symptoms assessed, the number of patients assigned to them for that shift, and whether they found their patients to be having delirium or not using their subjective clinical impression. This questionnaire was distributed to nurses at the start of their shift and collected after approximately 2 hours to allow them time to complete their patient assessments. The principal investigator also conducted the objective assessments within the first 2 hours of the day shift. Information about patients' admitting diagnosis to hospice and use of haloperidol during their hospice stay was also obtained by the principal investigator through chart review shortly after completing the objective assessments at bedside. The use of haloperidol any time during the hospice admission was coded as yes, and nonuse was coded as no. The chart review was conducted shortly after the principal investigator completed the objective assessments at bedside.

Data Analysis Procedures

Using the Systat (Systat Software Incorporated, Chicago, Illinois) statistical analysis program, a descriptive statistical analysis was performed to identify the mean years of experience of the RNs who participated. Using SPSS (IBM, Armonk, New York), data were measured by comparing the number of incidents of delirium assessed by nurses using their subjective clinical impression and those that were detected by the principal investigator using the CAM. The κ measure of agreement was used to assess for interrater agreement between the subjective nursing assessments for delirium and the objective assessments performed by the principal investigator using the CAM. A total of 50 paired assessments of individual patients were performed. κ gives the reader a quantitative measure of the degree of agreement between observers who evaluate the same thing.[18] κ ranges from -1 (indicates perfect disagreement) to 1 (indicates perfect agreement).[18]

Human Subjects Protection

Demographic information obtained from the nurses was deidentified. Deidentification was also achieved by assigning a unique code to each patient participating in the study. A paper copy of these code assignments was stored in a locked drawer in a locked room at the John D. Dingell VA Medical Center. No identifiable participant or patient information was shared.

RESULTS

The study was conducted from March to April 2013 on an inpatient hospice unit for a large health care system in an urban area. There were 6 RNs who participated. A total of 7 patients who were admitted for end-of-life care and who had an underlying diagnosis of dementia were assessed for delirium daily by RNs who used their subjective assessment skills. The principal investigator also performed delirium assessment on the same patients during the same time using the objective CAM tool. A total of 50 paired objective and subjective assessments were obtained. The years of experience for the 6 RNs ranged from 15 to 37 years. Results yielded a statistical mean of 25.5 years of experience and an SD of 9. All 6 RNs had a bachelor of science degree in nursing.

The symptoms described by the nurses who found their patients to have delirium included anxiety, forgetfulness, inattention, yelling, trembling, repetitive speech, pacing,

confusion, hallucination, agitation, aggression, and inability to verbalize. The nurses reported responsibility for 7 patients per shift. Those who cared for 4 or more shared the care with a licensed practical nurse. A review of the patients' records for the use of haloperidol indicated that 1 of the patients found to have delirium using the CAM received haloperidol every 6 hours around-the-clock, as ordered. A review of medication records of 13 objective assessments revealed patients not found to have delirium using the CAM received haloperidol within the past 24 hours.

A κ measure of agreement was performed between the results of the objective and subjective assessments for delirium. The value of their κ measure of agreement was 0.074 with a significance of $P > .05$. A κ value of 0.01 to 0.20 shows no agreement.[17] The *P* value obtained also indicates that the finding is not statistically significant, suggesting no statistically significant agreement between the subjective nursing assessment for delirium and the objective assessment using CAM.

In 30 paired assessments, the objective and subjective assessments had the same findings. There were 26 patients who were found to have delirium, whereas 4 were found not to have delirium. The remaining 20 paired assessments showed a disagreement between the subjective and objective findings. A total of 16 patients who were found to have delirium using the objective method were not subjectively found to have delirium, whereas 4 patients who were subjectively found to have delirium were objectively found not to be having delirium.

DISCUSSION

The findings indicated that the subjective nursing assessment for delirium in patients with underlying dementia during end-of-life care lacked agreement with the objective assessment for delirium using the validated CAM delirium assessment tool 40% of the time. The discrepancy resulted despite the fact that the RNs who participated in the study were highly educated and experienced. Haloperidol use was also noted among patients who were found not to be having delirium using the CAM.

The disagreement between the subjective and objective assessment for delirium 40% of the time is significant, indicating that there is a need to improve the uniformity and consistency of delirium assessment. It may also indicate that delirium is not accurately detected almost half of the time. As a result, inappropriate interventions could be rendered, such as the use of haloperidol for symptoms thought to be related to delirium but are really not. Their higher level of nursing education and years of nursing experience did not seem to improve the nurses' ability to subjectively assess for delirium.

The findings in this study of a discrepancy between subjective and objective assessments replicate the findings of observational studies previously conducted.[15-17] In this study, patients who did not appear to exhibit symptoms using the objective CAM were medicated for their symptoms with the use of haloperidol based on the nurses' subjective assessment just like in 1 of the previously conducted studies.[17] It should be noted, however, that the population of patients in previous studies included all patients receiving acute care in the ICU, whereas in this study, the population was hospice patients who are receiving end-of-life care and who have previously been diagnosed with dementia.[16,17]

The overlapping behavioral symptoms related to both delirium and dementia may have made it challenging for the nurses to subjectively distinguish between the 2.[8] The fact that delirium is characterized by an acute and fluctuating course of inattention, disorganized thinking, and altered consciousness may not be known to all nurses.[2] Delirium is also very common at the end of life, so it may be more difficult for hospice nurses to differentiate it from the other symptoms seen among dying patients.[6]

The findings suggest that future studies should compare objective and subjective nursing assessments for delirium in other patient-care areas where underlying cognitive impairments can make the detection of delirium more challenging. Conducting a study with a similar sample in a larger population would also be helpful in providing increased reliability of the findings. Based on the symptoms of delirium that were described by the nursing participants, a study that analyzes the nurses' understanding of the cluster of symptoms associated with delirium likewise would be beneficial.

IMPLICATIONS

The use of subjective nursing assessment to identify delirium in patients with underlying dementia and who are receiving end-of-life care exhibited no agreement with the results of the objective and validated CAM. This finding demonstrates that there is no uniformity or consistency between objective and subjective assessments for delirium even when performed by experienced nurses. The results of the study support the use of a validated tool such as CAM to accurately assess for delirium in patients with underlying dementia who are receiving hospice care to improve their quality of life. Findings from this study also indicate that there is a need to better educate nurses in assessing for delirium in order to prevent inappropriate and unnecessary nursing interventions. Educating nurses on nonpharmacologic interventions available for delirium also appears warranted.

STUDY LIMITATIONS

The limited sample size for the study may not be an accurate representation of the general population. It is also

important to note that the patients' condition changes from day to day so repeated measures on the same patient can be beneficial when collecting these data. Because of staffing changes, only 6 RNs assigned to the day shift participated in the study.

CONCLUSION

The findings from this study support the conclusion that there is no agreement between the subjective nursing assessment for delirium and objective assessment using a validated tool (CAM). The disagreement between the validated tool and subjective findings poses a concern that inaccurate subjective findings may result in the provision of unnecessary or inappropriate interventions. In Levine's Conservation Model of Nursing, nursing interventions were identified as actions that nurses use to promote patients' integrity.[14] Accurate nursing assessment results in appropriate nursing interventions that will promote patients' integrity. Inappropriate nursing interventions that result from inaccurate nursing assessments may negatively impact the quality of end-of-life care rendered to patients and their families. The use of a validated objective assessment tool for delirium such as the CAM should be considered as part of an ongoing nursing assessment for symptoms that may be due to delirium. Even though the nurses who participated in this study were very experienced and highly educated, the findings indicate that ongoing education on symptom assessment and management should continue to be provided to all nurses. This may be particularly true for those symptoms that tend to overlap such as behavioral symptoms related to delirium and dementia. The principal investigator who also served as 1 of the patients' hospice care providers, took opportunities to educate the nurses on the difference between delirium versus nondelirium confusion, and the indication for haloperidol versus the use of supportive care and/or addressing unmet needs.

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