



EARLY DETECTION AND TREATMENT : AN EXAMINATION OF PRODROMAL SYMPTOMS OF POST OPERATIVE DELIRIUM IN ELDERLY PATIENTS

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ABSTRACT

Introduction: The development of postoperative delirium is a mental disorder common among those aged 70 and over in the wake of the surgery. The impact of postoperative delirium can be severe and result in withdrawal and deterioration in patients' quality of life. The purpose of this study was to identify the prodromal symptoms perceived by veteran nurses to reflect onset of postoperative delirium among elderly patients in Japan. **Methods:** Participants A total of 300 nurses, each with over five years' of nursing experience and over three years of clinical nursing experience on surgical wards, participated in this research. Consent and investigative cooperation was obtained from the nursing director of each hospital who was then sent copies of the questionnaire. Each director was requested to distribute the questionnaires among nurses in the surgical wards Participants. That met the inclusion criteria of this study. Questionnaires were returned by post in accordance with a three-week deadline. **Results:** The following items were to be most characteristic of postoperative delirium onset: "Has been refrain," "patient's mood is dark," "patient complains of wound pain," "patient refuses to roll over," "patient complains of urgency," "patient experiences a constant urge to have a bowel movement, the wrong time, patient refuses to adhere to their diet, and patient is unable to effectively use the nurses call. **Conclusions:** The results of this research revealed that prodromal symptoms identified by clinical nurses can be categorized into six distinct areas: behavior, confusion, negative symptoms, sleep, delusion, and excretion.

KEYWORDS: Postoperative Delirium, Prodromal Symptoms, Early Detection, Questionnaires, Japan

INTRODUCTION

The development of postoperative delirium is a mental disorder common among those aged 70 and over in the wake of the surgery. The impact of postoperative delirium can be severe and result in withdrawal and deterioration in patients' quality of life. In addition, postoperative delirium results in an extension of patients' length of stay in hospital and therefore leads to increased health care costs.¹ Nurses also characterize patients' suffering from the disorder as difficult to treat; as such patients typically experience negative emotions such as "anger" and "fear." Such emotions are also common among patients' families.² The prevalence of postoperative delirium ranges between 13.2–80%, although there are differences by surgical

area.³⁻⁵ The early detection and treatment of postoperative delirium is therefore of vital importance.

Recognizes that it is difficult for 95.7% of the clinical nurse care for postoperative delirium patients.⁶ Inouye⁷ analyzed 2,721 paired nurse/researcher observations for 797 postoperative elderly patients and discovered that clinical nurses identified delirium in 19% of cases. The authors discovered, however, that while nurses often failed to correctly identify the presence of postoperative delirium, they rarely inaccurately reported its presence. At present, nurses are given some latitude to intuitively assess the onset of postoperative delirium based on their experience and empirical knowledge. Evaluations from

inexperienced nurses, especially those unfamiliar with the rating scales used, may therefore be unreliable.⁸ In order to be able to provide nurses with the knowledge necessary to make informed judgments, it is important to gain an understanding of the factors that nurse believe to be associated with postoperative delirium onset.

METHOD

Study purpose: The purpose of this paper was therefore to evaluate the factors that experienced ward nurses associated with the onset of postoperative delirium among elderly patients in Japan.

Type of Study: Observational study.

Ethical considerations: In addition to the questionnaires to be distributed, all respondents were notified in writing of the purpose of this study, that their responses would be kept anonymous and their privacy respected, that they would not be charged for participation, that the obtained data would not be used for any other purpose than that already stated, that all data would be destroyed upon the conclusion of the research, and that the study was being carried out with the approval from the researchers' institution (approval number: 2011056).

Investigation period: From July 1, 2011 to January 31, 2012.

Investigative method: Participants A total of 300 nurses, each with over five years' of nursing experience and over three years of clinical nursing experience on surgical wards, participated in this research.

Consent and investigative cooperation was obtained from the nursing director of each hospital who was then sent copies of the questionnaire. Each director was requested to distribute the questionnaires among nurses in the surgical wards. Participants that met the inclusion criteria of this study. Questionnaires were returned by post in accordance with a three-week deadline.

Questionnaire items

The questionnaire consisted of 118 items related to potential symptoms of early stage postoperative delirium in the elderly. Respondents rated each item on a 5-point Likert scale (ranging from "strongly agree", "agree", "neutral", "disagree", to "strongly disagree") depending on whether they viewed the item to be representative of behavior displayed by elderly patients suffering from delirium within 24 hours of surgery on the central nervous system.

Analysis: Descriptive statistics were used to analyze the results based on symptom category created after reviewing the results of similar studies.

RESULTS

Specifically, the average length of experience was 15.5 years (± 9.0) with an average of 8.6 years' experience on surgical wards (± 5.8). And they had an average age of 38.6 years old (± 8.1).

Response rate of the 300 copies of the questionnaire that were distributed, 71 were returned for a response rate of 23.6%. The number of valid responses was 66, resulting in an effective response rate of 92.9%.

Descriptive statistics Nurses rated the following items as reflective of postoperative delirium prodromal symptoms: "patient does not speak to nurse," "patient's mood is dark," "postoperative pain," "patient refuses to roll over," "patient complains of urgent," "patient experiences a constant urge to have a bowel movement," "wrong time," "patient refuses to adhere to their diet," and "patient is unable to effectively use the nurse call." These items are highlighted in Table 1.

Table 1 Postoperative delirium prodrome Descriptive statistics

Item	Mean \pm SD
Precaution	3.70 \pm 1.031
Dark topic	3.67 \pm .991
Complain a wound pain	3.43 \pm .980
Not rolling over	3.37 \pm .976
Micturition	3.21 \pm .985
Bowel movement	3.07 \pm .919
Wrong time	2.43 \pm 1.104
Dietary intake difficult	2.44 \pm 1.084
Cannot use the nurse call	2.34 \pm 1.052

Postoperative delirium prodromal symptoms were classified into six categories created after reviewing the results of similar studies. These are shown in Table 2.

Table 2. Postoperative delirium prodrome

Category	Item
Behavior	Touch the Drip insertion site, Touch the Stomach tube
Confusion	Wrong time, Hallucination, Not hold conversation
Negative symptoms	Blink less, Not rolling over
Sleep	Circadian rhythm of modulation, Insomnia
Delusions	purse stolen, Come to pick family
Excretion	Appeal to urinate, Appeal to defecate, Incontinence, Go to the toilet at night

DISCUSSION

Postoperative delirium may be assessed via level of psychomotor activity, where patients are categorized as either a low activity type, hyperactive type, or mixed.⁹ The low activity type, often characterized by somnolence, may often be mistaken for depression by clinical nurses and result in an incorrect diagnosis. This is consistent with the findings reported by Inouye et al.¹⁰ who demonstrated that nurses had a tendency to underestimate the presence of postoperative delirium.¹¹ The early detection and treatment of this disorders important as delays in onset recognition may exacerbate adverse effects such as sedation, making it increasingly more difficult for nurses to correctly recognize the presence of postoperative delirium. Several items reported to be reflective of onset symptoms by nurses in the present study (such as “patient refuses to roll over,” “patient refuses to adhere to their diet,” and “patient is unable to effectively use the nurses call”) may be viewed as symptomatic of both depression and low-activity-type delirium. As a result, nurses may tend to overlook these signs.¹² It is likely that greater nursing experience is needed to correctly identify these as symptoms of postoperative delirium. Two of the five most frequently reported items in this study related to personal characteristics of the patient and son Nurses may need to strive to better understand these factors in order to increase their ability to recognize onset of postoperative delirium. The first of

the six categories of postoperative delirium prodromal symptoms used in this study, refers to patients’ efforts to engage with their treatment and the equipment surrounding them. As patients often show a low level of consciousness post-surgery, this may refer to normal behaviors that are not undertaken by patients. Nurses will need to understand the pertinence of these actions.

The second category, confusion, refers to several items related to disorientation and which are used in the DSM-5.⁹ Patients that display confusion show a significant deterioration from preoperative behavior and often ask the same questions and make the same mistakes many times. Nurses need to be aware when confusion occurs, as this is a comparatively easy symptom category to detect. The third category, Negative symptoms, contains items reflective of low-activity-type delirium. As patients that display these symptoms are often quiet and apparently resting in bed, there is a very high risk that these symptoms are missed by nurses and that they are therefore allowed to develop into severity before being noticed. Nurses involved in the care of postoperative elderly patients should therefore have a good understanding of these symptoms and pay close attention for them. Sleep the fourth category, acknowledges that there may be relationship between modulation of delirium onset and circadian rhythms. According to Taguchi et al.¹³, Matsuura¹⁴ analyzed patients’ melatonin sleep-wake cycle adjusts the circadian rhythm, there by influencing prostaglandin production and mediating the speed of physical recovery. As a result, nurses should monitor the sleep-wake rhythm as part of postoperative delirium onset prevention. Delusion symptoms, often along the lines of patients reporting the theft of an imagined wallet, are also derived from items in the DSM-5.⁹ Such symptoms are typical among patients with mental illnesses and so nurses should pay particular attention to speech content, as these signs are relatively easy to recognize. The final category, excretion, relates to the findings of Yamaguchi et al.¹⁵ That postoperative patients that report discomfort and request a catheter frequently were later diagnosed with postoperative delirium. Nurses should be particularly aware of this potential predictor in order to identify

patients that may be at higher risk of developing postoperative delirium.

CONCLUSION

The results of this study reveal that there are six categories of prodromal symptoms for postoperative delirium (behavior, confusion, negative symptoms, sleep, delusions, and excretion). It is important that nurses in Japan are familiar with the symptoms of all these categories in order to be better placed to recognize and treat postoperative delirium among elderly patients in its early stages.

CONFLICT OF INTEREST

Nil

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