Nurse’s Knowledge and Practice of Chemotherapy Induced Nausea and Vomiting Management among Patients with Respiratory Malignancy - A Descriptive Study

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Abstract

Objective: The purpose of this study was to identify the nurses’ knowledge and practice in prevention and management chemotherapy induced nausea and vomiting in patients with respiratory malignancy.

Methods: This research used cross-sectional design with cluster random sampling method involved 102 nurses. The sample was nurses in chemotherapy treatment ward at least have been work for one year. The instrument included nurse characteristic questionnaire, a questionnaire of knowledge and practice questionnaire about the management of chemotherapy induced nausea and vomiting.

Results: The results found the knowledge of nurses was in the range of quite good, and the practice was in the range of sometimes until often. The nurses’ knowledge was excellent in patient education and lack in assessment of nausea and vomiting. A frequent nurse’s intervention was collaboration in pharmacological therapy, and the non-pharmacological therapy implemented occasionally.

Conclusion: To maintain and improve nurses' knowledge and practice, it is necessary to promote continuous education or training, and placement of nursing staff according to their competencies. Further research is expected to use direct observation methods to investigate nursing care management of chemotherapy induced nausea and vomiting.

Keywords: Chemotherapy induced nausea and vomiting, management, nursing knowledge, and nursing practice

Introduction

Indonesia is one of the developing countries that have the most lung cancer incidence in men, which is around 21.8%³. One of the government central hospitals in Indonesia has became a respiratory referral hospital providing chemotherapy services that have a high incidence of lung cancer.

Cases of lung cancer are often diagnosed when the disease is at an advanced stage and therefore surgery is not a choice of treatment but chemotherapy. Although chemotherapy is an effective treatment, it has side effects for the cancer patients. The most common side effects of chemotherapy are nausea and vomiting. More than half of women undergoing chemotherapy reported experiencing nausea and vomiting after chemotherapy in spite of using antiemetic drugs². In fact, many patients undergoing chemotherapy experience nausea and vomiting. Nausea and vomiting do not only occur when patients are undergoing chemotherapy, but it also often occurs when patients have finished chemotherapy procedure and when patients are at home or are on next treatment. As a consequence, many patients came back or went to the hospital with complaints of nausea and vomiting induced by chemotherapy⁴.

The prevention and management of chemotherapy-induced nausea and vomiting become an essential part of nursing interventions in patients with respiratory malignancy. Nurses’ knowledge and practice in that management are becoming a reference for helping patients improve comfort while they are undergoing chemotherapy. By performing nausea and vomiting management, nurses begin with assessing of complaints of nausea and vomiting, assessing risk factors increasing nausea and vomiting, delivering non-pharmacological therapy, collaborating in providing pharmacological therapy, and educating about prevention of nausea, vomiting, and self-care in patients who were undergoing chemotherapy ⁵.

Knowledge is an important aspect of the formation of one's actions that are realized by displaying intellectual abilities and skills ⁵. Furthermore, practice is the result of an attitude or real action that is combined with a
supporting factor or possible conditions, such as facilities. Although nurse’s knowledge and practice are integrative aspect in nursing care management, it was not 100% perfectly conducted in the real practice in the form of nurses' behavior towards, for example in care management post-surgical pain patients in hospitals.

The study results on the level of knowledge and attitudes of nurses in reducing pain in post-surgical patients in similar hospital with this conducted study was not 100% perfectly conducted in the real practice in the form of nurses' behavior towards post-surgical pain patients in hospitals. It was proven by 102 nurses as participants; 63 nurses (62%) have high knowledge and positive attitude, and 40 people (38%) have a low level of knowledge and were negative. The purpose of this study is to identify nurses’ practices on the management of chemotherapy-induced nausea and vomiting in patients with respiratory malignancy.

Method

The study design was cross-sectional descriptive with cluster random sampling technique (probability sampling). The participants were 102 nurses who worked at least one year in the chemotherapy room. This study used the adapted questionnaires of Brand/ISNNCC questionnaire, International Survey Version 4.2406094. The researcher modified the questionnaire, and then conducted the validity and reliability test. Validity test was conducted with 30 nurses who worked at least one year in the chemotherapy room. The results of the validity test in the knowledge level questionnaire, each question has a value of validity test is more than r table (0.361) and reliable (α = 0.909). In the nurse practices questionnaire, the results of the validity of each test the question has a value of validity test more than r table (0.361) and the reliable (α = 0.946). This study obtained ethical approval from the committee faculty of nursing.

Results

Table 1. Chemotherapy Nurses Characteristics ($N = 102$)

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D III Nursing</td>
<td>84</td>
<td>82.4</td>
</tr>
<tr>
<td>Ners</td>
<td>18</td>
<td>17.6</td>
</tr>
<tr>
<td>Length of working</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>57</td>
<td>55.9</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>45</td>
<td>44.1</td>
</tr>
<tr>
<td>Chemotherapy Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>32.4</td>
</tr>
<tr>
<td>No</td>
<td>69</td>
<td>67.6</td>
</tr>
</tbody>
</table>

The table 1 showed that most participants have bachelor degree education (Diploma- III of Nursing) with work experience of 1-5 years and had not been trained chemotherapy (69% of respondents).

Table 2. Nurses’ knowledge about the management of chemotherapy-induced nausea and vomiting in respiratory malignancies ($N = 102$)

<table>
<thead>
<tr>
<th>Management Knowledge</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk factors for nausea and vomiting</td>
<td>3.5</td>
</tr>
<tr>
<td>Assessment of nausea and vomiting</td>
<td>3.3</td>
</tr>
<tr>
<td>Pharmacological Therapy</td>
<td>3.4</td>
</tr>
<tr>
<td>Non-pharmacological therapy</td>
<td>3.5</td>
</tr>
<tr>
<td>Education</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Table 2 illustrates the average knowledge of participants showing the highest mean value is in the knowledge of education that can be given to patients who experience nausea and vomiting caused by chemotherapy. The minimum score for nurses’ knowledge is 1 which means that nurses’ knowledge about management of chemotherapy-induced nausea and vomiting in respiratory malignancy patients is ‘very less’ and the maximum score is 5, which means the nurse’s knowledge is ‘very good’.

Table 3. Nurses’ practices regarding the management of chemotherapy-induced nausea and vomiting in respiratory malignancies ($N = 102$)

<table>
<thead>
<tr>
<th>Management Actions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk factors for nausea and vomiting</td>
<td>2.9</td>
</tr>
<tr>
<td>Assessment of nausea and vomiting</td>
<td>2.9</td>
</tr>
<tr>
<td>Pharmacological Therapy</td>
<td>3.3</td>
</tr>
<tr>
<td>Non-pharmacological therapy</td>
<td>2.6</td>
</tr>
<tr>
<td>Education</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Table 3 shows the mean score of the nurses’ practices in the management of chemotherapy-induced nausea and vomiting in patients with respiratory malignancy. The highest value is found in collaborative actions in the provision of pharmacological therapy in patients with respiratory malignancy that experience chemotherapy-induced nausea and vomiting. The minimum score for the actions of nurses is 1, which means nurses have ‘never’ done action management of chemotherapy-induced nausea and vomiting in patients with malignancy respiratory, and maximum score is 4, which means that nurses ‘very often’ acts management of
chemotherapy-induced nausea and vomiting in patients with malignancy respiratory.

Discussion

Nurses Characteristics
The number of participants who have bachelor nursing (Diploma-III) education was more than professional nurse/general nurse (Ners.) education. This shows that the distribution of nurses’ education levels in this respiratory referral hospital was still uneven. The number of nurses who have bachelor education at this hospital was 80% of the total number of nurses. Based on the classification of nurses’ education level, the total number of nurses in Indonesia was 77.56% nurses graduated from bachelor’s degree, 10.48% nurses graduated from master degree, 6.42% specialist nurses, and 5.17% nurses graduated from health care school that equal with senior high school.

In contrast to the two previous studies, a study found that 80% of nurses who took part in research on the role of nurses in the management of chemotherapy-induced nausea and vomiting had an undergraduate education degree. The average work experience of participants in this study was 1.44 years. More than half of participants had work experience for 1-5 years and 44.1% participants had experience for more than 5 years. This is due to the hospital's policy of rotating nurses since a year ago. Other related factors was such as employment status. For example, senior nurses tend to be assigned in outpatient or polyclinics. Different with previous research, approximately 66.9% of nurses had more than 5 years of work experience in treating patients undergoing chemotherapy.

This study results showed that more than half of the participants (67.60%) had never attended chemotherapy training. Training is one of the factors that influence knowledge and action. The high number of nurses who have not received chemotherapy training may be due to the less opportunity to participate the training. This is due to chemotherapy training schedules were not always available every month. Other studies explain that training in oncology care was very useful and can be undertaken as an assessment of the difference between nausea and vomiting, factors that cause nausea and vomiting, types of vomiting, and how to use a measurement tool of nausea and vomiting. According to Rhodes and Daniel (2004), a measuring tool that can be carried out to assess nausea and vomiting is the Nausea Vomiting and Retching Index (INVR), the Nausea Vomiting and Emesis, the Numeric Rating Scale (NRS).

Assessment of Risk Factors for Vomiting Nausea
Respondents had an average knowledge of the range of 'good enough' to 'good' about the risk factors for nausea and vomiting. Average score was 3.5 of 5 (very good). Knowledge of the risk factors for nausea and vomiting includes factors causing the occurrence of nausea and vomiting in patients undergoing chemotherapy. The factors were patient age, gender, type of chemotherapy agent, experience of patients undergoing chemotherapy that most respondents (70.6%) often took these factors. From the 102 respondents, only 9 respondents who very often conducted assessment of risk factors for the occurrence of nausea and vomiting. This means that there was a need for motivation for most nurses to assess the risk of chemotherapy induced nausea and vomiting. Only one third of respondents who did assessment of risks for nausea vomiting before starting chemotherapy, and more than 40% reported that the use of nausea and vomiting assessment tools was rarely applied. Almost half nurses had inadequate knowledge of various aspects of chemotherapy-induced nausea and vomiting, but most nurses could clearly state that the pharmacological agents most commonly used to treat chemotherapy-induced nausea (88.3%) and vomiting (87.4%).

Assessment of Chemotherapy-Induced Nausea and Vomiting
Respondents had on average have a ‘good’ knowledge of nausea and vomiting. Average score is 3.3 of 5 (very good). This means that nurses had knowledge about how to do assessment of chemotherapy-induced nausea and vomiting. Although the knowledge of nurses was good enough in this study, but at the time of data collection, researchers often found participants who asked about the measurement tools used to assess nausea and vomiting in chemotherapy patients. The socialization and use of measuring instruments for the assessment of chemotherapy-induced nausea and vomiting were very important. The number of nurses who carried out the assessment when the patient was undergoing chemotherapy was 19 of 102 nurses, while the nurses who very often took the assessment after patients underwent chemotherapy were 22 nurses. In studies of chemotherapy-induced peripheral neuropathy, many nurses (55.7%) often conducted the assessment of the risk factors for chemotherapy-induced peripheral neuropathy, 65.7% nurses knew the symptoms that appear in patients, and 57.1% nurses determined teaching strategies for patients’ adaptation.

In a study, there were an average in low score of nurse knowledge, which was 4.7 (SD = 3.5) (95% CI = 4.40-5.01). It means that nurses’ knowledge about chemotherapy-induced nausea and vomiting had poor score, so that the oncology nurses’ knowledge of the assessment and management of chemotherapy-induced nausea and vomiting was found to be inadequate. Assessment of chemotherapy-induced nausea and vomiting in patients with respiratory malignancies can be undertaken as an assessment of the difference between nausea and vomiting, factors that cause nausea and vomiting, types of vomiting, and how to use a measurement tool of nausea and vomiting. According to Rhodes and Daniel (2004), a measuring tool that can be carried out to assess nausea and vomiting is the Nausea Vomiting and Retching Index (INVR), the Nausea Vomiting and Emesis, the Numeric Rating Scale (NRS).
Pharmacological Therapy
Knowledge of nurses about pharmacological therapy was quite good and nurses' practices in collaboration pharmacological therapy was often conducted. The results of nurses' practices in providing pharmacological therapy had the highest average score compared to other practices Nurses' knowledge of chemotherapy developed from consultation with nurse colleagues (4.0 ± 0.8) and hospital in house training/education (3.9 ± 0.8) 14. The results of the study indicated that nurses had sufficient knowledge about chemotherapy. Basically, nurses must get more education about chemotherapy from formal education such as schools and through hospitals in house training/education.

Nurses' knowledge about the management of nausea and vomiting and the use of pharmacological therapy can reduce the frequency of nausea and vomiting (Bailey & Dougherty, 2008). Providing pharmacological therapy to patients who experience chemotherapy-induced nausea and vomiting was accomplished by collaborating with other health care teams. Health care teams expressed the importance of antiemetic and health education can prevent nausea and vomiting in post-chemotherapy patients15. Administering antiemetic drugs can be achieved before, during, and after patients undergoing chemotherapy. This was in accordance with the phenomenon in the hospital setting that nurses more often collaborated with other medical team to solve chemotherapy-induced nausea and vomiting.

Non-Pharmacological Therapy
Respondents in this study had a fairly good knowledge about non-pharmacological therapy given to patients with chemotherapy induced nausea and vomiting with an average score 3.5 of 5 (very good). This study showed that respondents only ‘sometimes’ conducted non-pharmacological therapy practices. The practices that were often held by nurses in this study were to encourage patients to eat a small portion frequently, eat slowly, drink a few hours after nausea and vomiting, avoid stinging odors, and avoid hot, spicy and oily foods. A study conducted in Jordan showed oncology nurses not only had inadequate knowledge and practices about the assessment and management of chemotherapy-induced nausea and vomiting, but also the weakness of the knowledge and practices of pharmacological and non-pharmacological therapies13. Non-pharmacological practices could be performed by teaching the distraction technique, giving acupressure, and encouraging patients to hear music, providing aroma therapy, and maintaining the diet. Maintaining diet includes encouraging patients to eat a small portion frequently, eat slowly, drink a few hours after nausea and vomiting, avoid stinging odors, and avoid hot, spicy and oily foods. These therapies were independent interventions of nurses that reduced the incidence of chemotherapy-induced nausea and vomiting. This was also due to the less energy the body needs to digest food; the less nausea and vomiting will be generated16. Nurses should often practice more interventions independently. Consequently, by delivering nursing independent interventions, it diminishes the patient's dependence on drugs especially antiemetic agents.

Education
Nurses' knowledge about education provided to patients who experience chemotherapy- induced nausea and vomiting was ‘quite good’. The results of this study also revealed that more than half of the respondents had provided education to patients.

Nurses' research about the effect of education on nurses' level of knowledge found that there were influences of providing education toward the level of nurses' knowledge in the application of modern dressings in diabetes mellitus wounds 17. Education provided by nurses was an evaluation stage of the practices that have been taken and provided follow-up performed by the patient independently.

Effective education is expected to improve the patient's independent ability to manage chemotherapy-induced nausea and vomiting. Research on repetitive cost effectiveness and single education that the repeated education and booklets resulted an effective way in reducing chemotherapy-induced nausea and vomiting 18.

Conclusion
This study found that the average respondents’ knowledge of the management of chemotherapy-induced nausea and vomiting in respiratory malignancies had a ‘good enough’ score. The highest average score was in knowledge of patient education. In the nurses’ practices, the lowest score was in non- pharmacological practice, which means nurses only ‘sometimes’ perform independent interventions. It is very unfortunate, because the provision of non-pharmacological therapy is an act of attending nurses that can decrease the incidence of chemotherapy-induced nausea and vomiting in patients with respiratory malignancy. Methods that can be applied to maintain and enhance the nurses’ knowledge and practices are by providing ongoing education or training and the assignment of nursing staff in accordance with the competencies nurses have. The future study should apply the direct observation method to investigate the management of chemotherapy-induced nausea and vomiting among chemotherapy nurses.

References


