

Review Article

The nursing safety hazards of managing cancer pain in elderly tumor patients and the management countermeasures

Feinan Dong

Department of Integrative Oncology, Fuyang People's Hospital, Hangzhou 311400, Zhejiang Province, China

Received February 29, 2020; Accepted May 11, 2020; Epub August 15, 2020; Published August 30, 2020

Abstract: Objective: Cancer pain is a common symptom that elderly cancer patients suffer. This paper aims to discuss the potential safety hazards in the nursing care of elderly patients with cancer pain. Methods: A total of 137 elderly patients with lung cancer were enrolled, among which 72 cases (the experiment group, hereinafter referred to as the EG) were prospectively analyzed, and the remaining 65 cases (the control group, hereinafter referred to as the CG) were retrospectively analyzed. The patients in the CG were treated with routine nursing. In addition to the basic routine nursing care, in the EG, we enhanced the pain management knowledge of the nursing staff, the patients, and their family members, we quickly soothed the psychological emotions of the pain patients, and we provided additional nursing consultations for the patients with continuous NRS scores ≥ 4 . In addition, the patients in the EG and their families were advised to actively record the locations and frequencies of the pain attacks, their pain scores (numerical rating scale: NRS), their anxiety scores (self-rating anxiety scale: SAS), their depression scores (self-rating depression scale: SDS), and their adverse reactions, quality of life, and nursing satisfaction. Results: We found that the oncology experience, nursing experience, and pain management experience of the nursing staff were directly related to their knowledge and attitude of pain management. An intra-group comparison revealed that the NRS, SDS, and SAS scores decreased, and the quality of life scores increased in both groups after the nursing. When compared with the CG, the NRS, SDS, and SAD scores and the incidence of adverse reactions were decreased in the EG, and the quality of life and nursing satisfaction were elevated. Conclusion: Improving the patients' and the nursing staff's pain knowledge and increasing their sensitivity to pain are beneficial in relieving patients' cancer pain.

Keywords: Cancer pain, pain management, nursing safety hazards

Introduction

Cancer pain is a common complication of elderly tumor patients, as they are susceptible to pain during the puncture diagnosis, cancer treatment, and tumor invasion [1, 2], and it is more prevalent in advanced cancer patients in low- and middle-income countries [3]. Based on the type of tissue damage, cancer pain can be divided into neuropathic pain, limb pain, and visceral pain [4]. As a result, the coping strategies vary according to the type of pain. Cancer pain not only causes overwhelming panic and pain in patients, it also seriously affects patients' quality of life and recovery [5-9]. In addition, pain is a recognized sign, so the occurrence of pain deserves much attention during the treatment of cancer patients [10].

Cancer pain is not incurable, and most of the symptoms can be relieved by proper and appropriate treatment strategies [11, 12]. The management of cancer pain is crucial during oncologic nursing [13]. The reliability of cancer pain nursing is affected by many factors. For patients, although cognitive impairment does not directly induce pain, it can make it difficult for patients to perceive pain and ignore pain attacks [14]. In addition, the lack of understanding of cancer pain among patients and their families is also a safety hazard during treatment or recovery. Holtzman et al. [15] found that training patients on pain knowledge can reduce the pain scores. As far as the nursing staff is concerned, the mastery of pain management knowledge and attitudes towards treating patients' pain are important factors

Table 1. Characteristics of the nursing staff (n = 58)

	mean ± SD	n (%)
Gender		
Male		19 (32.76)
Female		39 (67.24)
Age	29.76±2.72	
Nursing experience (years)	5.53±1.23	
Oncology experience (years)	3.39±0.94	
Education level		
< University		32 (55.17)
≥ University		26 (44.83)
Received pain nursing training		
Yes		43 (74.14)
No		15 (25.86)
Participation in pain nursing team		
Yes		39 (67.24)
No		19 (32.76)

influencing their evaluation of patients' pain [3, 16-18]. Utne et al. [19] believed that nursing staff should take professional pain management courses to improve the safety and effectiveness of tumor treatment.

Compared with tumor patients at other ages, elderly patients face greater hidden safety concerns [20]. Therefore, the timely detection and elimination of the related hidden hazards are the focus of the pain strategies in elderly patients. Here, with 72 elderly lung cancer patients enrolled in the EG for a prospective analysis, and 65 elderly lung cancer patients included in the CG for a retrospective analysis, this study examines the safety hazards that affect cancer pain during nursing and formulates a specific nursing plan according to the safety-related hidden trouble, so as to provide reliable scientific data for developing a cancer nursing strategy and effectively improving patients' pain.

Materials and methods

General information about the nursing staff

The 58 nursing staff were all digestive physicians and nurses in our hospital, including 19 (32.76) males and 39 (67.24) females, with an average age of (29.76±2.72) years, nursing experience of (5.53±1.23) years and oncology experience of (3.39±0.94) years. All the nursing staff were informed of the study and signed the informed consent. This study was initiated with the approval of the Medical Ethics

Committee of our hospital. See **Table 1.** Inclusion criteria of the nursing staff: digestive physicians and nurses were included who worked in our hospital for at least 6 months. Exclusion criteria of the nursing staff: those who did not cooperate with the researchers or those with mental illnesses [18, 19].

General information of patients

A prospective analysis was performed on 72 elderly tumor patients (the EG) admitted to our hospital from January 2017 to March 2018, and a retrospective analysis was conducted on 65 elderly tumor patients (the CG) treated in our hospital from February 2015 to March 2016. The EG consisted of 43 males (59.72) and 29 female patients (40.28), with an average age of (68.54±5.75) years. The CG included 41 males (63.08) and 24 females (36.92), with an average age of (67.23±4.27) years. Although there were no significant statistical differences between the two groups in terms of gender, age, BMI index, alcoholism history, smoking history, education level, pathological differentiation, marital status, T staging, or tumor types, further comparison studies can be conducted. Inclusion criteria of the patients [20]: Patients aged ≥60 years, who were diagnosed with gastrointestinal tumors through their pathological or clinical characteristics, with chronic cancer pain. Exclusion criteria of the patients [20]: Patients with non-digestive tumors; patients with non-tumor diseases in gastroenterology; patients with digestive dysfunction; patients with mental illness; patients who did not cooperate with the treatment. All the patients were informed of the study and signed the informed consent. This study was carried out under the approval of the Medical Ethics Committee of our hospital. See **Table 2.**

Nursing intervention

The CG received routine nursing care, that is, the nursing staff evaluated each patient's pain level throughout the whole process, instructed the patient to take the appropriate amount of analgesics, and popularized the relevant knowledge of cancer pain to the patients. In addition to receiving the routine nursing care, the EG added the following programs: (1) A dedicated pain management team was established to train the team members in the professional knowledge and skills of pain management, so

The knowledge and attitudes of patients and nursing staff help cancer pain nursing

Table 2. Patient clinical data

	EG (n = 72)	CG (n = 65)	t/ χ^2	P
Gender			0.162	0.687
Male	43 (59.72)	41 (63.08)		
Female	29 (40.28)	24 (36.92)		
Age	68.54±5.75	67.23±4.27	1.501	0.136
BMI	20.11±1.06	19.98±1.14	0.692	0.491
Alcoholism history			0.674	0.412
Yes	47 (65.28)	38 (58.46)		
No	25 (34.72)	27 (41.54)		
Smoking history			0.056	0.861
Yes	44 (61.11)	41 (63.08)		
No	28 (38.89)	24 (36.92)		
Education level			0.093	0.864
< Junior high school	38 (52.78)	36 (55.38)		
≥ Junior high school	34 (47.22)	29 (44.62)		
Pathological differentiation			2.297	0.153
Moderate-high differentiation	51 (70.83)	38 (58.46)		
Low differentiation	21 (29.17)	27 (41.54)		
Course of disease	2.69±0.52	2.78±0.64		
Marital status			2.303	0.181
Yes	56 (77.78)	43 (66.15)		
No	16 (22.22)	22 (33.85)		
T staging			0.376	0.591
T2/T3	49 (68.06)	41 (63.08)		
T4	23 (31.94)	24 (36.92)		
Tumor types			4.090	0.129
Gastric cancer	31 (43.06)	18 (27.69)		
Liver cancer	22 (30.56)	29 (44.62)		
Colon cancer	19 (26.39)	18 (27.69)		

Attitudes Score (KAS) rating scale mentioned in the paper by Karaman et al. [16] and Alnajjar et al. [17]. Consist of 39 questions, and the scale is divided into 3 parts. The first part is the yes-or-no answering mode, or one can choose true or false. The second part is the multiple choices, and the third part is the case analysis. One point for correct answer and the failure of point for incorrect answer. Higher scores are associated with more knowledge or the more positive attitude on the part of the caregiver.

Evaluation of the patients' degree of pain [21]: The 11-point pain intensity numerical rating scale (PI-NRS) was employed to assess the patients' degree of pain. The more severe the pain, the higher the NRS score. No pain: NRS = 0; Minor pain: $1 \leq \text{NRS} \leq 3$; Moderate pain: $4 \leq \text{NRS} \leq 6$; Severe pain (tolerable): $7 \leq \text{NRS} \leq 9$; Severe pain (unbearable): NRS = 10.

as to improve the positive attitude of the team members in dealing with pain; (2) The patients' psychological emotions were relieved right away, and they were actively encouraged to eliminate their fear and anxiety of pain; (3) Additional nursing consultations were carried out for those with an NRS score of ≥ 4 for two consecutive days; (4) According to the tumor type, the corresponding health guidelines were developed to improve the awareness of the patients and their families of the corresponding cancer and pain, and the patients and their families were advised to actively record the locations and frequencies of the pain attacks.

Outcome measures

Assessment of the knowledge and attitudes of the nursing staff on pain management: The nursing staff's knowledge and attitudes were evaluated by referring to the Knowledge and

Determination of anxiety and depression: By referring to the Beck anxiety scale [22] and the depression scale [23], the patients' self-rating anxiety scale (SAS) scores and their self-rating depression scale (SDS) scores were respectively recorded and assessed. No anxiety: $0 \leq \text{SAS} \leq 7$; Minor anxiety: $8 \leq \text{SAS} \leq 15$; Moderate anxiety: $16 \leq \text{SAS} \leq 23$; Severe anxiety: $24 \leq \text{SAS} \leq 63$. No depression: $0 \leq \text{SDS} \leq 13$; Minor depression: $14 \leq \text{SDS} \leq 19$; Moderate depression: $20 \leq \text{SDS} \leq 28$; Severe depression: $29 \leq \text{SAS} \leq 63$.

Evaluation of the patients' quality of life: The patients' quality of life after the nursing was evaluated from the following five aspects by referring to the study of Haroutounian et al. [24]: physical function, emotional function, cognitive function, role function, and social function [24]. The higher the score on the quality of life scale, the better the quality of life.

Table 3. Relationship between the nursing staff's KAS scores and their characteristics (n = 58)

	n (%)/ mean ± SD	KAS	t/r	P
Gender			1.698	0.0951
Male	19 (32.76)	15.54±2.86		
Female	39 (67.24)	16.98±3.11		
Age	29.76±2.72	16.97±2.83	0.0709	0.5969
Nursing experience (years)	5.53±1.23	16.97±2.83	0.7862	0.0258
Oncology experience (years)	3.39±0.94	16.97±2.83	0.7354	0.0012
Education level			1.846	0.0703
< University	32 (55.17)	17.23±3.25		
≥ University	26 (44.83)	15.62±3.37		
Received pain nursing training			2.788	0.0072
Yes	43 (74.14)	17.18±3.18		
No	15 (25.86)	14.58±2.89		
Participation in pain nursing team			9.428	<0.0001
Yes	39 (67.24)	19.22±3.06		
No	19 (32.76)	10.94±3.24		

Results

The relationship between the KAS and the nursing staff's characteristics

Since the knowledge and attitudes of the nursing staff about pain management affect the degree of cancer pain, this paper recorded and evaluated the nursing staff's KAS and analyzed the correlation between their KAS and general characteristics. The results (**Table 3**) showed that KAS was related to their nursing experience, oncology experience, training

The two groups' adverse reactions before and after the nursing were recorded and compared including nausea, vomiting, urine retention, constipation, and painful coma. Incidence of adverse reactions = (total number of adverse reactions/number of cases in each group) × 100%.

According to the evaluation classifications of dissatisfied, basically satisfied, and satisfied, the degrees of satisfaction after the nursing were analyzed and compared between the two groups.

Statistical analysis

The above data were input into SPSS 20.0 (Asia Analytics Formerly SPSS China) for the statistical analysis, and the data were plotted using GraphPad Prism 8.0. The measurement data were expressed as the mean ± SD, and the inter-group comparison as well as the intra-group comparisons were performed using independent sample t tests. The count data were expressed in the form of n (%), and the comparisons between groups were conducted using χ^2 tests. Pearson correlation coefficients were applied to describe the correlation analyses. All the data were double-tailed. With 95% as its confidence interval, a statistically significant difference was assumed at P<0.05.

in pain nursing, and participation in pain nursing teams, but it had no connection to gender, age, or education level, indicating that professional pain management training helps enhance nursing staff's KAS regarding pain management. Furthermore, in order to effectively intervene in cancer pain in elderly tumor patients, the following improvements were made in addition to the routine nursing care: (1) A special pain management team was established to train the team members in the professional knowledge and skills of pain management, so as to improve the positive attitude of the team members in dealing with pain; (2) The patients with NRS scores ≥4 for two consecutive days were given an additional nursing consultation to promptly reduce their degree and frequency of pain; (3) The patients' psychological emotions were promptly relieved, and they were actively encouraged to eliminate their fears and anxiety related to pain; (4) According to the tumor type, corresponding health guidelines were developed to improve the awareness of the patients and their families on the corresponding cancer and pain, and the patients and their families were encouraged to actively record the locations and frequencies of the pain attacks. The improvements were intended to raise awareness and enthusiasm for pain management among the nursing staff and the patients.

Table 4. NRS scores

	CG (n = 65)	EG (n = 72)	t	P
Before nursing	7.33±1.36	7.09±1.34	1.027	0.3064
After nursing	4.16±1.13	3.58±0.92	3.288	0.0013
t	14.29	18.42		
P	<0.0001	<0.0001		

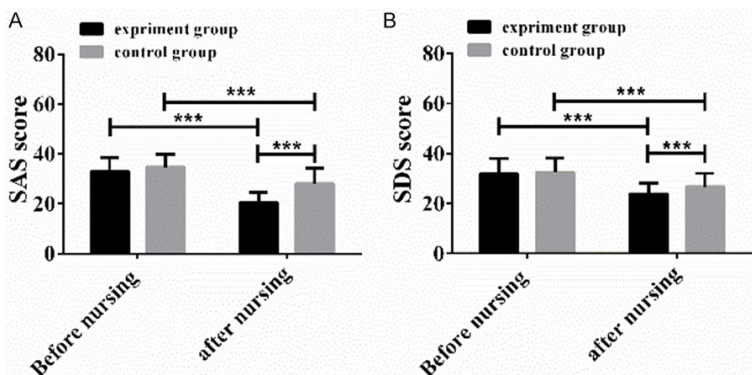


Figure 1. The SDS and SAS scores before and after the nursing in the two groups. A. SAS before and after the nursing, *** indicates $P < 0.001$; B. SDS before and after the nursing, *** indicates $P < 0.001$.

Table 5. Quality of life

	EG (n = 72)	CG (n = 65)	t	P
Physical function	74.69±5.57	58.69±5.97	4.865	<0.0001
Emotional function	73.51±4.68	57.84±5.11	5.667	<0.0001
Cognitive function	75.84±5.16	62.34±4.53	4.454	<0.0001
Role function	76.39±5.48	57.21±4.29	5.971	<0.0001
Social function	77.42±4.04	56.58±4.35	8.735	<0.0001

NRS scores

The comparison (Table 4) of the NRS scores in the two groups before and after the treatment demonstrated that: (1) The NRS scores were decreased in both groups after the nursing; (2) There was no statistical difference in the NRS scores between the two groups before the nursing, but the NRS in the EG was higher than it was in the CG after the nursing. The above results suggest that improving pain awareness and interest among patients and nursing staff can effectively reduce cancer pain.

SDS and SAS scores

In this part of our research, we recorded and compared the SDS and SAS scores of the patients in the two groups before and after the treatment. The results (Table 1) demonstrated

that: (1) The SAS and SDS scores declined in both groups after the nursing; (2) There were no significant statistical differences in the SAS and SDS scores between the two groups before the nursing, but after the nursing, the SAS and SDS scores in the EG were higher than those in the CG. The above results indicate that improving the awareness and interest of the patients and nursing staff for pain can effectively relieve patients' anxiety and depression, and alleviate patients' fear and anxiety about cancer. See Figure 1.

Quality of life

Here, we evaluated the patients' quality of life after nursing from the following five aspects: physical function, emotional function, cognitive function, role function, and social function, and the results (Table 5) exhibited that the life quality of the patients in the EG was statistically higher than it was in the CG, which indicated that improving the awareness and enthusiasm among patients and nursing staff for pain

management can effectively enhance patients' quality of life and promote their recovery after treatment.

Nursing satisfaction

In this section, we recorded and compared the patients' satisfaction with the nursing in the two groups. With dissatisfied, basically satisfied, and satisfied as the scoring criteria, the satisfaction rate = the basically satisfied rate + the satisfied rate. The results (Table 6 and Figure 2) demonstrated that the satisfaction in the EG (93.05%) was statistically higher than it was in the CG (72.69%), $t = 9.351$, $P = 0.002$, indicating that improving the awareness and enthusiasm of the patients and nursing staff for pain management can effectively improve the patients' satisfaction, which is conducive to promoting the patients' treatment compliance.

Table 6. Nursing satisfaction

	CG (n = 65)	EG (n = 72)	P
Satisfaction	25 (37.31)	41(56.94)	
More satisfaction	23 (35.38)	26 (36.11)	
Not satisfied	17 (26.15)	5 (6.94)	
Total satisfaction	48	67 (93.05)	0.0025

Adverse reactions

The adverse reactions that occurred during the nursing in the two groups were also observed and compared. The results (Table 7) showed that the EG had 2 (2.78%) cases of nausea and vomiting, 1 (1.39%) case of urinary retention, 1 (1.39%) case of constipation, and there were 6 (9.23%) cases of nausea and vomiting, 1 (1.54%) case of urinary retention, 1 (1.54%) case of constipation and 3 (4.62%) cases of painful coma in the CG. From the above data, it is clear that the incidence of adverse reactions in the EG (5.56%) was statistically lower than it was in the CG (16.92%), suggesting that improving the patients' and nursing staff's awareness and enthusiasm for pain management can effectively reduce patients' adverse reactions and increase the safety of cancer treatment.

Discussion

Pain management is an integral part of the nursing care of cancer patients. How to analyze and eliminate the possible risk factors during nursing is the focus of this paper. By analyzing the relationship between the nursing staff's KAS and their characteristics, we found that their nursing experience, oncology experience, training in pain nursing, and participation in pain nursing teams were associated with their KAS, but gender, age, and education level had nothing to do with it. The inadequate understanding of cancer pain management by nursing staff can easily lead to nursing omissions and trigger nursing safety accidents [13]. Zhang et al. [25] believed that the awareness of cancer pain management and professional pain remission education should be improved among Chinese doctors. In addition, it is also crucial to raise patients' and their families' understanding of cancer pain, otherwise, the lack of knowledge can easily result in their ignorance of cancer pain, thus ultimately affecting the nursing effect. Valeberg et al. [26] proposed

that pain management training for patients and their families should be actively carried out. Therefore, this paper formulated corresponding strategies for the above-mentioned safety hazards, with a view to improving the nursing staff's understanding and awareness of pain management.

In order to verify that improving the nursing staff and patients' awareness and enthusiasm for pain management is helpful in alleviating cancer pain, the corresponding EG and CG were recruited for this study. The patients in the CG received routine nursing care, while those in the EG experienced the increased pain knowledge training of both the nursing staff and the patients in addition to the routine nursing care, and we encouraged them to actively observe and deal with the cancer pain. It turned out that the EG presented statistically lower NRS, SDS, and SAS scores, a lower incidence of adverse reactions, and the group enjoyed a remarkably higher quality of life and nursing satisfaction than the CG, indicating that improving the awareness and enthusiasm among patients and nursing staff for pain management effectively improves the nursing effect and alleviates patients' pain.

This study analyzed the relationship between the nursing staff's characteristics and their KAS scores and found that nursing staff's awareness and positive attitude towards pain management should be improved. However, the current study does not compare the relationship between the patients' characteristics and their NRS scores, and only by referring to other studies, we acknowledged that patients' cognition and positive attitudes towards pain management should be improved at the same time. Therefore in future studies, we will further compare and analyze the possible nursing hazards among patients and their families to provide more reliable scientific data.

In summary, this study confirms that improving the nursing staff's pain management skills and their enthusiasm for pain management in addition to routine nursing can promptly appease patients' negative emotions, increase the patients' and their family members' in-depth understanding of the disease and enthusiasm for treatment. It can be concluded that improving the awareness and enthusiasm of the

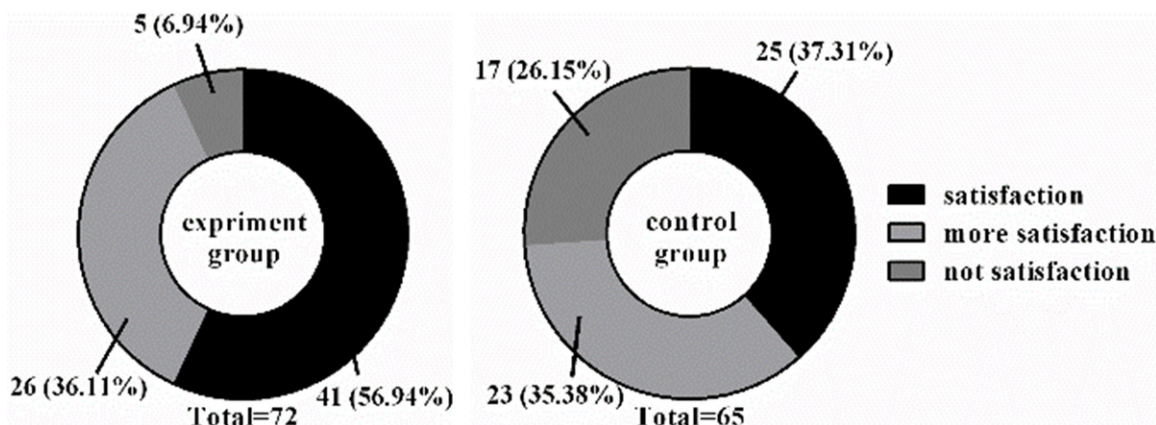


Figure 2. The nursing satisfaction in the two groups. ** indicates P<0.01.

Table 7. Adverse reactions

	CG (n = 65)	EG (n = 72)	X ²	P
Constipation	1 (1.39)	1 (1.54)		
Urinary retention	1 (1.39)	1 (1.54)		
Painful coma	0	3 (4.62)		
Feel sick and vomit	2 (2.78)	6 (9.23)		
Incidence rate	4 (5.56)	11 (16.92)	4.527	0.053

patients and nursing staff for pain management can effectively alleviate patients' pain, improve the safety of cancer treatment, and increase the enthusiasm of the patients to participate in treatment. Above all, in pain management, attention should be paid to raise the awareness and impart the knowledge of both nursing staff and patients.

Disclosure of conflict of interest

None.

Address correspondence to: Feinan Dong, Department of Nursing, Fuyang People's Hospital, No. 429 Beihuan Road, Fuyang District, Hangzhou 311400, Zhejiang, China. E-mail: zangjiashishi50479@163.com

References

[1] Mello BS, Almeida MA, Pruinelli L and Lucena AF. Nursing outcomes for pain assessment of patients undergoing palliative care. *Rev Bras Enferm* 2019; 72: 64-72.
 [2] Money S and Garber B. Management of cancer pain. *Current Emergency and Hospital Medicine Reports* 2018; 6: 141-146.

[3] Onsongo LN. Barriers to Cancer Pain Management among nurses in Kenya: a focused ethnography. *Pain Manag Nurs* 2020; 21: 283-289.
 [4] Fink RM and Gallagher E. Cancer pain assessment and measurement. *Semin Oncol Nurs* 2019; 35: 229-234.
 [5] Thompson J. Treating cancer pain: the palliative nursing dilemma. *Int J Palliat Nurs* 2016; 22: 12.
 [6] Miner MB, Stephens K, Swanson-Bearman B, Leone V and Whiteman K. Enhancing cancer pain assessment and management in hospice. *J Hosp Palliat Nurs* 2018; 20: 452-458.
 [7] Chen L, Zhou C, You X, Li S, Wang Y and Yu S. Evidence-based nursing can improve the clinical efficacy of cancer pain care for patients with lung cancer. *Int J Clin Exp Med* 2019; 12: 6000-6006.
 [8] Russo MM and Sundaramurthi T. An overview of cancer pain: epidemiology and pathophysiology. *Semin Oncol Nurs* 2019; 35: 223-228.
 [9] Rodriguez C, Ji M, Wang HL, Padhya T and McMillan SC. Cancer pain and quality of life. *J Hosp Palliat Nurs* 2019; 21: 116-123.
 [10] Pimentel CB, Briesacher BA, Gurwitz JH, Rosen AB, Pimentel MT and Lapane KL. Pain management in nursing home residents with cancer. *J Am Geriatr Soc* 2015; 63: 633-641.
 [11] Darawad M, Alnajjar MK, Abdalrahim MS and El-Aqoul AM. Cancer pain management at oncology units: comparing knowledge, attitudes and perceived barriers between physicians and nurses. *J Cancer Educ* 2019; 34: 366-374.
 [12] Edwards T, Foster T and Brant JM. Managing cancer pain in patients with opioid and substance use disorders. *Semin Oncol Nurs* 2019; 35: 279-283.
 [13] Bouya S, Balouchi A, Maleknejad A, Koochakzai M, AlKhasawneh E and Abdollahimohammad A. Cancer pain management among oncology nurses: knowledge, attitude, related factors, and clinical recommendations: a sys-

The knowledge and attitudes of patients and nursing staff help cancer pain nursing

- tematic review. *J Cancer Educ* 2019; 34: 839-846.
- [14] Dube CE, Mack DS, Hunnicutt JN and Lapane KL. Cognitive impairment and pain among nursing home residents with cancer. *J Pain Symptom Manage* 2018; 55: 1509-1518.
- [15] Holtzman AL, Williams JP, Hutchinson DF, Morris CG and Yeung AR. Improving patient-reported pain during radiotherapy through nurse involvement and patient education. *Am J Clin Oncol* 2018; 41: 1028-1030.
- [16] Karaman E, Vural Dogru B and Yildirim Y. Knowledge and attitudes of nursing students about pain management. *Agri* 2019; 31: 70-78.
- [17] Alnajar MK, Darawad MW, Alshahwan SS and Samarkandi OA. Knowledge and attitudes toward cancer pain management among nurses at oncology units. *J Cancer Educ* 2019; 34: 186-193.
- [18] Samarkandi OA. Knowledge and attitudes of nurses toward pain management. *Saudi J Anaesth* 2018; 12: 220-226.
- [19] Utne I, Smastuen MC and Nyblin U. Pain knowledge and attitudes among nurses in cancer care in Norway. *J Cancer Educ* 2019; 34: 677-684.
- [20] Al-Atiyat NMH and Vallerand AH. Patient-related attitudinal barriers to cancer pain management among adult Jordanian patients. *Eur J Oncol Nurs* 2018; 33: 56-61.
- [21] Brouwer BA, van Kuijk SMJ, Bouwhuis A, Faber CG, van Kleef M, Merkies ISJ and Hoeijmakers JGJ. The pain dynamics of small fiber neuropathy. *J Pain* 2019; 20: 655-663.
- [22] Beck AT, Epstein N, Brown G and Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol* 1988; 56: 893-897.
- [23] Beck AT, Robert AS and Gregory KB. Beck depression inventory-II. *San Antonio* 1996; 78: 490-498.
- [24] Saifi MD, Meidan R and Davidson E. The effect of medicinal cannabis on pain and quality of life outcomes in chronic pain: a prospective open-label study. *Clin J Pain* 2016; 32: 1036-1043.
- [25] Zhang Q, Yu C, Feng S, Yao W, Shi H, Zhao Y and Wang Y. Physicians' practice, attitudes toward, and knowledge of cancer pain management in China. *Pain Med* 2015; 16: 2195-2203.
- [26] Valeberg BT, Miaskowski C, Paul SM and Rustoen T. Comparison of oncology patients' and their family caregivers' attitudes and concerns toward pain and pain management. *Cancer Nurs* 2016; 39: 328-334.