Original Article

Investigation of post-operative pain levels and nursing ınterventions following gynecologic surgery

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ABSTRACT

Background & Aim: Nowadays, new methods related to pain management have emerged. However, it has been reported in studies that post-operative pain management is inadequate. The purpose of this study was determined to pain levels of the patients after gynecologic surgery and nursing interventions.

Methods & Materials: This descriptive study was undertaken as a multicenter study in the gynecologic surgical departments of the university and state hospital in Samsun. 221 patients who had an operation in first 48 hours post-operative, were participated in the study voluntarily, were included in the study sample. Data were collected by questionnaire and visual analog scale (VAS). Data were evaluated with percentage, mean, Mann–Whitney U and Kruskal–Wallis tests.

Results: It was determined that the patients were experienced severe pain according to VAS (7.23 ± 2.79). It was found a significant relationship between the pain scores and marital status, smoking habit, and operation length of the patients. It was found that the most common applied nursing pain management intervention were preparing a comfortable and quiet environment and giving information about effects of the disease and drugs. It was found that nurses were not used imagination and music.

Conclusion: This study was showed that the patients were experienced severe pain the early period after gynecologic surgery and that frequency of non-pharmacologic methods of nurses were very few in pain management.

Introduction

Surgical interventions are major causes of pain. Pain that occurs after surgery is an acute painful experience that physiologically and psychologically affects individuals negatively and which begins with tissue destruction after surgical trauma and decreases gradually and terminates with tissue healing. Nowadays, the physiology of acute pain can be explained better, and new methods related to pain management have emerged. However, it has been reported in studies that post-operative pain management is inadequate and approximately 50-80% of the patients experience moderate to severe pain (1-4). Researchers have suggested that healing is delayed, the duration of hospital stay lengthens, and the costs increase if the post-operative pain management is insufficient (5, 6). Also, letting the patient be in pain is not ethical, and pain reduces both patient's quality of life (3, 12, 13) and satisfaction (3, 14). The literature emphasizes the need for team approach and the combined use of various analgesics and non-pharmacological methods for the relief of post-operative pain (7). Nurses are expected to administrate the drugs ordered by the physicians and evaluate the effectiveness of the medication. They are also responsible for informing patients

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concerning coping skills by obtaining information about patients' previous pain experience.

Studies in the literature generally evaluate the effectiveness of pharmacological methods for the relief of post-operative pain (8, 9). Notwithstanding those analgesics are indispensable in the management of post-operative pain, they may not always provide adequate pain relief. Also, analgesics have some undesirable side effects. Therefore, to reduce post-operative pain, non-pharmacological methods in an effort to increase the effectiveness of pharmacological methods are recommended (7, 10). There are many non-pharmacological methods that can be used as an effective pain management such as distracting (drawing attention to another aspect), relaxation, therapeutic touch, informing, verbal support, music, massage, and aromatherapy (11).

Because nurses spend longer times with the patients than the other health care team members do, they may observe the patient closely, provide guidance how to cope with pain and monitor the results of the application. For this reason, nurses should take an active role in pain management (1). Pain is a subjective sensation and can only be defined by the individual who has it. Therefore, the most accurate way to understand whether the applications performed to relieve the pain are adequate is to ask the patient (12, 13). The aim of this study is to determine the post-operative pain levels, the factors affecting pain level and nursing interventions related with pain management in patients who underwent gynecologic surgery.

Methods

This cross-sectional study was conducted at Ondokuz Mayıs University Medical Practice and Research Center and Samsun Maternity and Children Hospital between 30/12/2013 and 28/02/2014. Women who were hospitalized and had Surgery in the Obstetrics and Gynecology Departments of both hospitals were constituted research population. All women who agreed to participate in the study and met the inclusion criteria out of those who were hospitalized on the specified dates were included in the study. Inclusion criteria are: to be between ages 18 and 60, to undergo gy-

necologic surgery and to be able to communicate verbally in Turkish and to be conscious and willing to participate. Patients were excluded if they reported renal or liver disease, progressive neurological condition, or history of substance abuse. Only ASA Class I or II patients were eligible. All patients had uniform pre-operative and post-operative orders. Totally 221 patients hospitalized in Obstetrics and Gynecology departments for various reasons recruited to study.

Moderate to severe pain (4-6/10) following abdominal surgery is reported to last for 1-4 days (mean 2.5 days) (15) and reach its maximum level within the post-operative 24-48 hours and then decrease gradually (16). Therefore, data were collected from the patients within the post-operative 48 hours period. According to hospital policy, non-steroid anti-inflammatory was given 3 times in a day regularly and Meperidine was given when needed to the patients who were hospitalized in the specified clinics for the treatment of post-operative pain.

Data were collected via 20 minutes face-to-face interview using questionnaire (including socio-demographic and medical condition) and visual analog scale (VAS), which was developed by the researchers in accordance with the literature. The questionnaire includes questions regarding patient surgical experience, previous surgeries, chronic diseases, pre-operative information, duration, and type of operation and implementation of nursing interventions. The VAS score is determined by measuring in centimeters from the left of the line with the range 0-10. The point that the patient marks and the numerical value obtained indicates the pain intensity (17, 18). VAS is reported to be more sensitive and reliable in measuring pain intensity in comparison to other one-dimensional scales (18). Vertical form of VAS was used in this study.

The study was approved by above-mentioned institutions. The patients were informed, and their written informed consents were obtained. Data were analyzed using SPSS 15.0 software package (SPSS, Inc., Chicago, IL, USA) and expressed as a percentage, mean and standard deviation. Mann–Whitney U and Kruskal–Wallis tests were used for the analysis of the data. Non-parametric tests were used for data

were not normally distributed and P < 0.050 were considered as significant.

Results

Of the patients, 82.4% were at the age of 40 and below, 46.6% were primary school graduate, 96.4% were married, 98.6% were living with their family, 82.8% were non-smokers, and 23.1% had chronic disease (Table 1).

It was also determined that 76.9% of the patients had no chronic disease, 74.2% had previous surgical operation, 75.6% were informed about the operation, 73.8% underwent 1-hour surgery, 69.2% were within the post-operative 24 hours, 53.4% underwent operation under spinal anesthesia, 46.6% underwent operation under general anesthesia and 75.1% were informed about pain prior to surgery (Table 2).

Table 1. Characteristics of the patients and comparisons with VAS scores (N: 221)

Characteristics	N (%)	VAS score X ± SD	Test, P values
Age group			
< 40 year	182 (82.4)	7.15 ± 2.77	U = −1.104
40 and above	39 (17.6)	7.61 ± 2.87	P = 0.269
Education level			
Illiterate	17 (7.7)	7.82 ± 3.22	
Literate	22 (10.0)	6.68 ± 2.73	KW = 2.692
Primary school	103 (46.6)	7.24 ± 2.72	P = 0.442
High school and above	79 (35.7)	7.26 ± 2.82	
Marital status			
Single	8 (3.6)	9.00 ± 2.82	U = −2.338
Married	213 (96.4)	7.17 ± 2.77	P = 0.019*
Lives			
Alone	3 (1.4)	7.33 ± 4.61	U = −0.419
With family	218 (98.6)	7.23 ± 2.77	P = 0.675
Smoking habit			
Yes	38 (17.2)	8.05 ± 2.71	U = −2.110
No	183 (82.8)	7.07 ± 2.78	P = 0.035*
Chronic disease			
Yes	51 (23.1)	7.82 ± 2.39	U = −1.457
No	170 (76.9)	7.06 ± 2.88	P = 0.145

*Statistically significant. U: Mann–Whitney U-test, KW: Kruskal–Wallis test, VAS: Visual analog scale, SD: Standard deviation

Table 2. The features of the operation comparisons with VAS scores (N: 221)

The features of the operation	N (%)	VAS score X ± SD	Test
Operation experience			
Yes	164 (74.2)	7.41 ± 2.69	U = −1.375
No	57 (25.8)	6.73 ± 3.02	P = 0.169
Obtain information about operation			
Yes	167 (75.6)	7.32 ± 2.75	U = −0.842
No	54 (24.4)	6.96 ± 2.90	P = 0.400
Duration of the operation (hours)			
0-1	163 (73.8)	6.96 ± 2.83	KW = 9.772
1-2	40 (18.1)	7.60 ± 2.73	P = 0.021*
2-3	15 (6.8)	8.86 ± 1.95	
3-5	3 (1.4)	9.33 ± 0.57	
The period after the operation 16.48 ± 12.80 (hours)			
0-24	153 (69.2)	7.26 ± 2.88	U = −0.491
24-48	68 (30.8)	7.17 ± 2.58	P = 0.624
Anesthesia type			
General	103 (46.6)	7.55 ± 2.78	U = −1.753
Spinal	118 (53.4)	6.96 ± 2.77	P = 0.080

*Statistically significant. U: Mann–Whitney U-test, KW: Kruskal–Wallis test, VAS: Visual analog scale, SD: Standard deviation

Table 3. The frequency of interventions of nurses for pain relief

Interventions	Never N (%)	Rarely N (%)	Sometimes N (%)	Frequently N (%)	Always N (%)
Preparing a comfortable environment	1 (0.5)	-	30 (13.6)	18 (8.1)	172 (77.8)
Changing the patients position	80 (36.2)	75 (33.9)	64 (29.0)	1 (0.5)	1 (0.5)
Helping mobilization	39 (17.6)	97 (43.9)	69 (31.2)	3 (1.4)	13 (5.9)
Distracting attention	56 (25.3)	46 (20.8)	108 (48.9)	9 (4.1)	2 (0.9)
Relaxation technics	62 (28.1)	52 (23.5)	96 (43.4)	8 (3.6)	3 (1.4)
Bowel elimination	27 (12.2)	186 (84.2)	3 (1.4)	-	5 (2.3)
Giving information	17 (7.7)	16 (7.2)	61 (27.6)	18 (8.1)	109 (49.3)
Supporting the incision site	22 (10.0)	34 (15.4)	154 (69.7)	7 (3.2)	4 (1.8)
Giving the ordered medication	2 (0.9)	4 (1.8)	168 (76.0)	24 (10.9)	23 (10.4)
Observing side effects of drugs	8 (3.6)	12 (5.4)	191 (86.4)	4 (1.8)	6 (2.7)
Dreaming	94 (42.5)	31 (14.0)	32 (14.5)	31 (14.0)	33 (14.9)
Listening to music	132 (59.7)	41 (18.6)	23 (10.4)	20 (9.0)	5 (2.3)

The mean VAS score of the patients was 7.23 ± 2.79. A statistically significant difference was observed between marital status, smoking habits and duration of the current operation and the patients' pain intensity on VAS ($P < 0.050$) (Tables 1 and 2).

The interventions that were applied in the group sometimes at 40% rate and above are named as "The most frequent nursing interventions" and they were as follows; distraction (drawing one's attention to another aspect), relaxation techniques, supporting the operation site while moving, following physician's instructions for the medication and observing the side effects of drugs. The interventions in the group always at 49% rate and above are named as "Routine interventions" which include preparing a comfortable and quiet environment for the patient and informing the patient about the disease and the effect of drugs. Also, nurses sometimes help their patients in elevating their extremities (or bodies) and also mobilization and enema administration. On the other hand, interventions such as changing the position of the patient, applying day dreaming technique and playing music were not common among nurses (Table 3).

Discussion

How best to manage post-operative pain represents a significant challenge in current gynecologic-surgical practice. Unrelieved discomfort after surgery is a common clinical problem. For the effective pain management, pain level must be assessed carefully and pharmacologic and non-pharmacologic methods must be used to-gether by the care team. The patient-nurse relationship during post-operative convalescence is important because nurses figure prominently in post-operative pain management. The aim of this study was to determine the post-operative pain levels, the factors affecting pain level and nursing interventions related to pain management in patients who underwent gynecologic surgery.

In our study, nearly half of the patients underwent surgery under general anesthesia, 69.2% were within the first 24 hours after surgery, and the mean VAS score was 7.23 ± 2.79.

It is very important to have high pain score, as it shows the lack of pain control. Because many complications may occur due to lack of pain management. Researchers have suggested that healing is delayed, the duration of hospital stay lengthens, and the costs increase if the post-operative pain management is insufficient (5, 6). In the study of Sills et al. (19) evaluating the post-operative pain within the first 24 hours following surgery of the female reproductive tract, VAS score was found as 3.3 ± 2.8 at 6th hour, 1.9 ± 2.1 at 24th hour. Pain levels in that study were lower than those in our study. It was thought that this situation might have resulted from using different pharmacologic methods for pain control since analgesics may affect pain scores. In Çelik's (20) study investigating post-operative pain level amongst patients with abdominal incision, the mean VAS scores in women were found as 5.66 ± 1.87. In a study, 86% of the female volunteers were reported to have moderate to severe pain (4). In Aubrun et al.'s (21) study, women had high VAS scores (74 ± 19).

In this study, a statistically significant difference was observed between marital status, smoking habits and duration of the current operation and patient's pain intensity on VAS (P < 0.050). It was observed that single women (unmarried) experience more severe pain than married women. In addition, female smokers also experience more pain than female non-smokers. Similarly, Shi et al. reported a positive correlation between pain severity and smoking (22). Female former and current smokers used more opioid analgesics than female never-smokers after gynecologic surgery (19). In Çelik's (20) study, pain levels of smokers were higher than those of non-smokers. In Zanaty's (23) study, it was found that chronic nicotine smoking increases the incidence of perioperative pain. In a general surgical population, smokers reported higher pain scores both before and after surgery but did not experience greater increases in pain postoperatively compared with non-smokers (22). Thus, based on the limited available evidence, increased post-operative analgesic requirements might be anticipated in cigarette smokers, although whether this effect is of sufficient magnitude to warrant a change in clinical approach is not clear. Clearly more data are needed from carefully conducted prospective clinical studies.

In our study, pain level in single individuals was higher than those in married individuals (P < 0.050). Similar results were obtained in Çelik's study (20). It was determined in our study that having previous surgical experience and informing patients about pain did not have an influence on pain level (P > 0.050). In Çelik's study (20), it was observed that patients who had previous surgical experience felt a higher level of pain than those who did not have. Özer and Bölükbaş (15) and Kırdemir and Özorak (24) reported that those having previous surgical experience had higher levels of pain. In contrast with these findings, Büyükyılmaz and Aştı (25) and Topçu (26) showed that past experiences have positive effect on pain tolerance. Different results were obtained in various studies investigating the effects of information preoperatively provided to the patients on pain. Karayurt (27) found that post-operative pain was higher in the group who received routine pre-operative education. On the other hand, Çetinkaya and Karabulut (17) reported decreased anxiety and pain levels in patients who were informed preoperatively.

In our study, the most frequent nursing interventions were as follows; distraction (drawing one's attention to another aspect), relaxation techniques, supporting the operation site while moving, following physician's instructions for the medication and observing the side effects of the drugs. Routines interventions were preparing a comfortable and quiet environment for the patient and informing the patient about the disease and the effect of drugs.

Chan et al.'s study (28) examined the effect of music on the level of pain in patients undergoing colposcopy. In this study, the level of pain of the group who listened to music was significantly lower than in other group.

Good et al.'s study (29) on 468 patients has concluded that relaxation, music and the combination of these two reduce pain similarly on post-operative day 1 and 2 and during ambulation and rest.

It was also determined that 76% of the nurses apply medication according to physician's instructions. In related studies, it was shown that nurses mostly administer analgesics for pain relief and do not use non-pharmacological methods (10, 11). Since pain is a subjective symptom, recognition of the patient in all aspects is important. Therefore, nurses should have sufficient knowledge about the story taking, making a continuous observation and appropriate pain assessment methods (30). It was determined in a study conducted by Eti Aslan and Badir (31) that nurses' knowledge regarding pain management and relief is insufficient. In another study Klopfenstein et al., interventions made by physicians and nurses to assess and to relief pain were found insufficient (2). Dihle et al. (32) expressed that lack of systematic approach to collect and evaluate the data is the most important impediment to effective pain management. For effective pain management, pain should necessarily be assessed using a scale (30) and the efficacy of the intervention applied to relieve the pain should be checked (33). Nurses are in charge of helping the patients to take a deep breath and

cough and supporting the wound site during mobilization and positioning the patients in bed to relieve the pain. In our study, the ratio of supporting the wound site was found to be as 69.7%. Yılmaz and Gürler (3) reported that most of the nurses did not perform interventions such as helping patients in taking deep and coughing, supporting patients and/or their wound site during mobilization and repositioning patients to reduce the pain.

As well as administration of analgesics for the relief and elimination of post-operative pain, the determination of pain and anxiety levels of the patient and deciding and applying non-pharmacologic methods and evaluating the effectiveness of applications are important interventions in which nurses take an active role.

Conclusion

The problem of our patients in our study was suffering from pain. Therefore, as a result of our research we found that the nurses' pain management is not satisfactorily effective. Also, some factors such as marital status, smoking habits and duration of the current operation have effects on the pain level. Non-pharmacological interventions, which mainly are preparing a comfortable and quiet environment for the patient and informing the patient about the disease and the effect of drugs, are more likely to be used by nurses.

Acknowledgments

Conflict of interest

The authors declare no conflict of interest.

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