Original Article

Experience of Pain in Patients Undergoing Abdominal Surgery and Nursing Approaches to Pain Control

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Abstract

Background: Patients frequently experience moderate to severe pain in the postoperative period. Although the pain management is an integral and important part of the nursing care, studies suggest that nursing management of postoperative pain remains inadequate. Nurses are responsible in assessing the pain, applying the pharmacologic and/or non-pharmacologic methods, monitoring results, training the patient and family, and documenting the implementations. The nurses' holistic approach to pain management minimizes the patients' pain.
Aims: The purpose of this research was to determine post-operative experience of pain among patients undergoing abdominal surgery and to identify nursing approaches to pain control.
Methodology: This descriptive study was performed with 103 patients hospitalized in the surgical departments of a public hospital.
Results: In the post-surgical period, a mean patient severity of pain of 4.40±2.7 was determined based on a Visual Analogue Scale. Painkillers reduced pain in 89.3% of cases. Pain severity in patients who had previously undergone surgical procedures was higher than that in patients with no such history. We also determined that nurses did not employ scales for pain evaluation and did not assess the nature of the pain. During the process of bringing pain under control, 75.7% of patients reported that a calm and silent environment was provided, 78.6% that they were helped into a suitable position, 47.6% that hot/cold applications were administered, while no other non-pharmalogical procedures such as massage, listening to music or distraction were performed.
Conclusions: In conclusion, there appear to be deficiencies regarding the identification and management of pain. In the light of these findings we recommend that research be performed aimed at developing standards for pain management.

Key words: abdominal surgery, nursing care, nursing intervention, postoperative pain

Introduction

Despite technical advances in pain physiology, pharmacology, surgical techniques and pre-peri and post-surgical care, several studies still report that pain management following surgical procedures is inadequate, and 50-90% of patients still experience moderate to severe pain (Klopfenstein et al., 2000; Huang et al., 2001; Ozer & Bolukbas, 2001; Idvall et al., 2002; Mac Lellan, 2004; Pogatzki-Zahn et al., 2007; Samuels & Fetzer, 2009; CDC, 2010; Cevik & Zaybak, 2011; Yılmaz & Gurler, 2011; Topcu & Findik, 2012; Celik, 2013). The main reasons for inadequacy of pain management are that pain centers and therefore pain science have only recently begun developing, newly developed pain control methods and procedures are not widely used, doctors and nurses lack sufficient knowledge and experience of identifying and evaluating pain, health personnel do not pay sufficient importance to patient pain and a failure to establish teamwork in the treatment of pain (Lauzon Clabo, 2007; Francis & Fitzpatrick, 2013; Kiekkas et al., 2015).

Pain that cannot be effectively eliminated following a surgical procedure may cause an increase in the stress response that starts with surgery. Stress response is a desirable and important reaction for postsurgical healing. However, prolonged stress reaction may cause

postsurgical complications by adversely affecting the healing process (Shea et al., 2002; Brown et al., 2004; Wang & Keck, 2004).

Despite adverse results in terms of postsurgical pain, studies also report that measures taken to overcome pain are still inadequate, that the great majority of patients do not experience pain, and that pain reduces quality of life and impairs social interaction, prolongs length of hospitalization and increases mortality and morbidity levels (Ozer & Bolukbaş, 2001; Lauzon Clabo, 2007; De Cosmo et al., 2008; Cevik & Zaybak, 2011; Yılmaz & Gurler, 2011; Topcu & Findik, 2012; Francis & Fizpatrick; 2013, Celik, 2013; Kiekkas et al., 2015). However, good pain control relaxes the patient and increases quality of life, as well as reducing the incidence of complications and length of hospitalization (Lauzon Clabo, 2007).

Effective postsurgical pain control can be established through an individual-centered/individual-specific holistic approach and a multidisciplinary teamwork. It is important in terms for quality of pain management and patient comfort for nurses to manage pain using advanced care procedures (Plaisance & Logan, 2006). In addition, it has been reported that existing obstacles in the assessment and management of patient pain have not yet been overcome, and that these obstacles derive from time management problems and patients' and nurses' attitudes and beliefs (Bell & Duffy, 2009). Research into nurses' beliefs and attitudes toward pain have determined that nurses think that patients experience much less pain that they actually report (Idvall et al., 2002; Lauzon Clabo, 2007) and that patients believe they require pain killers on a constant basis for expected pain (Lloyd & McLauchlan, 1994). In addition to pharmacological methods in the management of pain, non-pharmacological methods will also help reduce pain. Indeed, studies have revealed that pain levels can be reduced and patients made more comfortable by the provision of presurgical information (Giraudet-Le Quintrec et al., 2003; Kearney et al., 2011; Aydin et al., 2015), allowing them to listen to music (Good et al., 2002; Voss et al., 2004; Good & Abn, 2008; Bellieni et al., 2013), cold application uygulama (Saito et al., 2004), massage (Piotrowski et al., 2003; Wang & Keck, 2004; Degirmen et al., 2010; Ucuzal & Kanan, 2014) and relaxation exercises (Roykulcharoen & Good, 2004; Büyükyılmaz & Aştı, 2010; Topcu & Findik, 2012).

The purpose of this study was therefore to determine nursing approaches to pain control on wards and patients' postsurgical pain perceptions, and to produce recommendations regarding the provision of effective pain management.

Methods

Design and Sample

The study conducted had a descriptive design. The study population consisted of patients undergoing abdominal surgery (benign prostate hypertrophy, appendicitis, acute cholecystitis, inguinal hernia, acute abdomen, uterine myoma, ovarian cyst, uterine bleeding, polyp etc.) in the surgical departments (general surgery, urology and gynecology) of a public hospital. A sample size formula with a specific population was used to determine the number of patients to be enrolled (n=93). The study was performed with 103 patients undergoing abdominal surgery under general anesthesia between 1 May and 30 August 2013, aged 18-65, with no diagnosis of cancer, no chronic pain, hospitalized for at least 24 h following the surgical procedure, undergoing elective surgery and agreeing to participate.

Ethical Considerations

This study was approved by the Selcuk University Faculty of Health Sciences non-interventional clinical research ethical committee, Konya, Turkey (Number: 27, Date: 03.2013/20). The aim and the method of the study were explained to the patients, and they were informed that if they did not wish to continue they could with draw from the study without giving any reason.

Procedure

A questionnaire prepared by the authors in the light of the literature and inquiring into individuals' demographic characteristics, health history and pain-related characteristics (Klopfenstein et al., 2000; Ozer & Bolukbas, 2001; Idvall et al., 2002; Botti et al., 2004; Idvall et al., 2005; Sloman et al., 2005; Dicle, 2007; Idvall & Berg, 2008; Kocoglu & Ozdemir, 2011; Yılmaz & Gurler, 2011; Wank & Keck, 2012; Celik, 2013; Carpenito-Moyet, 2014) and another questionnaire inquiring into nursing measures aimed at pain control in clinics during the nursing process (Ozer & Bolukbas, 2001; Idvall et al., 2002; Giraudet-Le Quintrec et al., 2003; Botti et

al., 2004; Breivik et al., 2006; Plaisance & Logan, 2007; Carpenito- Moyet., 2014) were used for data collection. In addition, patients were asked, 'Are there any other measures apart from those taken by nurses that could be taken to ease pain still further?'

The research data were collected as early as patients agreed to answer questions at least 48 h after surgery, based on reports in the literature that moderate and severe pain occurs in 1-4 days (mean 2.5 days) following surgery to the abdominal region (Celik, 2013), that pain levels are highest in the first 24-48 h after surgery and that they then decrease. Data were collected at face-to-face interviews lasting 15 min on average.

Data Analysis

The data obtained were transferred to computer for analysis using SPSS version 15.00 (SPSS, Inc., Chicago, IL, USA) software. A p value <.05 was considered significant. Numbers, percentages, and mean plus standard deviation were used at analysis. The Mann-Whitney U test and Bonferroni corrected Kruskall-Wallis test were used to compare the relation between pain and age, sex, marital status, education level, chronic disease, history of previous surgical procedures and number of days elapsing since surgery.

Results

The 18-40 age group comprised 59.2% of the patients in the research; 69.9% were women, 82.5% married, 49.5% primary school graduates, 57.3% had not undergone surgery previously, 87.4% had no chronic disease, 45.6% were hospitalized in the general surgery department, 21.4% had a medical diagnosis of appendicitis, 73.8% were on the second day after surgery, and 27.2% reported very frequent pain in their daily lives, and that the most common action taken was to use pain medications (67%).

Table 1. Characteristics of Postsurgical Pain Experienced by Patients

	n	Percentage
Experience of pain following surgical procedure (n=103)		
No	3	2.9
Yes	100	97.1
Level of pain expectation (n=103)		
Of the intensity expected	49	47.6
Less severe than expected	33	32.0
More severe than expected	21	20.4
Description of pain severity (n=103)		
No pain	3	2.9
Mild	29	28.2
Moderate	36	3.9
Severe	25	24.3
Very severe-unbearable	10	9.7
Site of pain*		
In the surgical incision area	90	87.4
In the location of the drains	10	9.7
In the back	11	10.7
Everywhere in the body	6	5.8
Conditions when pain was most frequently experienced*		
During performance of dressings	25	24.3
Getting out of bed	59	57.3
While walking	33	32.0
When coughing	50	48.5
Activities restricted due to postsurgical pain*		
Breathing	10	9.7
Moving	56	54.4
Sleeping	23	22.3
Coughing	47	45.6

No restriction	9	8.7
Change in pain severity (n=103)		
Increased	3	2.9
Decreased	92	89.3
No change	8	7.8
Duration of pain (n=103)		
Constant	21	20.4
At intervals	82	79.6
Procedures reducing pain*		
Administration of analgesia	92	89.3
Rest	36	35
Exercise	14	13.6
Changing position	18	17.5
Using the imagination to reduce pain	4	3.9

Note. *Expressed as percentages since more than one option was marked.

Table 2. Comparison of Descriptive Characteristics and Mean VAS Scores

Individual characteristics	Mean±SD	Test
Age group		
18-40	4.52±2.74	U=0.685**
41-65	4.21±2.81	
Sex		
Female	4.76±2.98	U=1.692**
Male	3.55±1.93	
Marital status		
Single	3.22±2.07	U=1.912**
Married	4.65±2.83	
Education level		
Illiterate/literate	4.35±3.00	KW=0.354**
Primary	4.63±3.00	
High school	4.08±2.47	
University	4.00±2.58	
Previous experience of surgery		
No	3.83±2.44	U=2.242*
Yes	5.16± 2.99	
Chronic disease		
No	4.36±2.79	U=0.542**
Yes	4.69±2.63	
Number of days after surgery		
2nd day	4.22±2.74	KW=1.506**
3rd day	4.75±2.88	
4th day or more	5.29±2.69	

Note. *p<0.05. **p>0.05; VAS = Visual Analogue Scale.

Table 3. Patients' Views Regarding Nursing Measures Applied for Pain

	Yes		No	
Data collection related to pain	**n**	**%**	**n**	**%**
Were you easily able to inform the nurse that you had pain?	102	99.0	1	1.0
After the surgical procedure, did the nurse frequently ask whether you had pain without your reporting it?	97	94.2	6	5.8
Did the nurse take detailed information about your pain?	91	88.3	12	11.7
Did the nurse employ a scale/checklist to assess your pain?	0	0	103	100
Did the nurse ask about the type of your pain when evaluating it? (sharp, burning, stinging etc.)	0	0	103	100
Did the nurse examine the painful area in detail?	70	68	33	32
Did the nurse examine the painful area by touching it?	45	43.7	58	56.3
Did the nurse ask how you coped with pain in your normal life?	57	55.3	46	44.7
Nursing procedures for pain relief				
Did the nurse inform you before surgery that you would experience pain after surgery (when coughing, standing up etc.)?	90	87.4	13	12.6
Did the nurse inform you before surgery how your postoperative pain would be relieved?	80	77.7	23	22.3
Did the nurse believe you when you said you had pain?	102	99.0	1	1.0
Did the nurse show an interest in you when you reported having pain?	96	93.2	7	6.8
Did the nurse act as your representative in pain relief?	73	70.9	30	29.1
Did the nurse explain the reasons for pain?	96	93.2	7	6.8
Did the nurse tell you how long the pain would last?	93	90.3	10	9.7
Did the nurse tell you there would be increases and decreases in your pain, and the reasons for this?	94	91.3	9	8.7
Did the nurse speak to you about how you wanted postoperative pain to be treated?	64	62.1	39	37.9
Did the nurse tell you what to do during movements that cause pain) coughing, standing up, walking, breathing)?	93	90.3	10	9.7
Did the nurse administer medication quickly when you required pain killer drugs?	101	98.1	2	1.9
Did the nurse give you a pain killer medication even if you did not request one?	69	67	34	33
Did the nurse provide a silent and peaceful environment so you could sleep easily?	78	75.7	25	24.3
Did the nurse assist you into a position that would reduce your pain?	81	78.6	22	21.4
Did the nurse apply heat or cold for pain relief?	29	28.2	29	28.2
Did the nurse have you perform exercises such as arm and leg movements or walking for pain relief?	49	47.6	54	52.4
Did the nurse perform massage to relieve your pain?	0	0	103	100
Did the nurse have you listen to music to relieve your pain?	0	0	103	100
Did the nurse encourage you to use your imagination to help relieve your pain?	0	0	103	100
Did the nurse help with pain treatment until you were satisfied with the results of the pain killers?	90	87.4	13	12.6
Assessment of pain relief				
Did the nurse observe/monitor the decrease and relief of your pain?	99	96.1	4	3.9

Postsurgical pain was reported by 97.1% of patients, with 34.9% reporting moderate pain, 87.4% reporting pain in the surgical incision site and 54.4% reporting restriction in daily life due to pain (Table 1).Mean severity of pain experienced by the patients on the Visual Analogue Scale (VAS) was 4.40±2.7 (min: 1, max: 10).

Pain severity scores of patients who had previously undergone surgery were lower than those of patients with no previous history of surgery ($p<0.05$). In addition, no statistically significant relation was observed between mean VAS pain severity score and age, sex, marital status, education level, chronic disease status or post-surgical day ($p>0.05$) (Table 2).
Almost all patients reported no problem in informing nurses of pain. They also stated that nurses never encouraged them to listen to music, receive massage or distract themselves. We also determined that nurses did not employ scales to assess patients' pain (Table 3).

Discussion

Despite progress in reducing pain, a universal experience, individuals still report experiencing it at various levels (Piotrowski et al., 2003). In this research, 27.2% of patients reported frequently experiencing pain in their daily lives. In another study, 19% of individuals reported frequently experiencing pain in their daily lives (Breivik et al., 2006). In contrast to these studies, levels of frequent experience of pain in daily life of 60.6-77.1% have also been reported in the literature (Lynch et al., 19997; Erdine et al., 2001; Yılmaz & Gurler, 2012). The use of pain medications is the most common measure employed to manage pain in pain control. Similarly, the use of pain medications is the most common method for coping with pain in daily reaching 53.3-86.3% (Erdine et al., 2001; Breivik et al., 2006; Kocoglu & Ozdemir, 2011; Yılmaz & Gurler, 2012; Celik, 2013).

In this research, 97.1% of patients reported experiencing postsurgical pain and that the severity of that pain gradually decreased. Previous studies concerning postsurgical procedure pain, have reported that 50-90% of patients experienced pain (Huang et al., 2001; Idvall et al., 2002; Pogatzki-Zahn et al., 2007) and that this decreased over time (Lynch et al., 1997; Shea et al., 2002; Cetin & Eser, 2006; Cetinkaya & Karabulut, 2010). In terms of location of pain, and in agreement with the literature (Ozer & Bolukbas, 2001; Cetin & Eser, 2006), in our study this was most common in the incision site. In agreement with Lin and Wang (2005) and Yılmaz and Gurler (2012), the activities most commonly causing postsurgical pain in this study were getting out of bed and coughing. Since pain is most common in the incision site and increases with such activities as getting up and coughing, it is important in terms of reducing incisional pain and tension to immobilize the incision site with a pillow or by hand when such activities are being performed.

The severity of pain on the VAS as experienced by patients on the 2nd day postoperatively was 4.4±2.70. The severity of pain in this study was higher than that in patients undergoing abdominal surgery in some studies (Cetin & Eser, 2006; Cetinkaya & Karabulut, 2010; Vaajoki et al., 2011) and lower than that in others (Huang et al., 2001; Celik, 2013).
Comparison of patients' sociodemographic characteristics, health history and experiences of pain revealed no significant correlation between severity of pain and age, sex, education level, marital status chronic disease or number of days after surgery. Severity of pain was higher in patients who had previously undergone surgical procedures. In confirmation of this finding, Lin and Wang (2005) reported that patients with previous adverse experience of pain experienced more postoperative pain. In contrast, however, Celik (2013) reported no significant association between previous experience of surgery and severity of pain.

In terms of collection of information regarding pain, 99% of patients said they were easily able to report pain to nurses, 94.2% reported that nurses frequently asked about pain, 88.3% that nurses collected detailed information about pain, and 55.3% reported that nurses asked them how they coped with pain in their daily lives. Yılmaz and Gurler (2011) also reported a 100% level of easy notification of pain to nurses and a 95.6% level of nurses frequently inquiring into the patient's pain status, findings comparable to those of this study. In that same study, the level of detailed inquiry into pain was 67.5%, while 3.3% of nurses inquired into how patients coped with pain in their daily lives, in contrast to the findings of the present research (Yılmaz &

Gurler, 2011). That difference represents a positive outcome of nurses having begun to perform more detailed evaluation over the years.

This study determined that nurses did not use any scales in the assessment of pain. Studies from Turkey have shown that no scales are used to evaluate pain (Yılmaz & Gurler, 2011; Celik, 2013) while studies from overseas have determined that scales are used, albeit few in number (Idvall et al., 2002; Idvall et al., 2005; Eid & Bucknall, 2008; Idvall & Berg, 2008). Dihle et al. (2006) reported that the most significant obstacle to effective pain management is that data collection and evaluation is not performed systematically. This research revealed that following measures aimed at pain reduction, nurses evaluated whether there had been a decrease in patient's pain in 96.1% of cases. Yılmaz and Gurler (2011) reported a decrease of 94.4%.

A significant obstacle to the expression of pain is the healthcare personnel's disbelieving in patient's report of pain. In that context, this research revealed that nurses believed almost all patients' reports of pain. Idvall et al.'s (2002; 2005) findings are similar to those of this study. In contrast to the present study, however, Idvall and Berg a lower level of belief on the part of nurses in patients' reports of pain (Idvall & Berg, 2008)

In our study, nurses examined the painful area visually in 68% of patients, and by touch in 43.7%. Similarly to our findings, Celik (2013) determined that measures were taken to identify the site of pain at a level of approximately 50%. In contrast to this study, however, Yılmaz and Gurler (2011) reported very low levels.

The present study also determined that nurses informed patients at quite a high level before surgery that they might experience pain during some activities in the postoperative period and what they could do during those activities. Lower levels of such notification have been reported in some studies in the literature (Idvall et al., 2002; Idvall et al., 2005; Idvall & Berg, 2008; Yılmaz & Gurler, 2011).

The majority of patients in this study (93.2%) reported that nurses displayed appropriate interest in them when they reported pain. Yılmaz and Gurler (2011) reported a similar finding (98.1%). In our study, 78.6% of patients reported that nurses helped them attain a more comfortable position to ease their pain, and 75.7% said that nurses ensured a calm and quiet environment to enable them to sleep comfortably. Some studies in the literature, have reported similar levels respectively 53.3%, 60% (Celik, 2013), 50%, 60% (Idvall, 2009).

In this study, 77.7% of patients reported that they were told before surgery how postoperative pain could be relieved. Idvall and Berg reported a similar level (2008) and Yılmaz and Gurler (2011) a much lower one. A further 61.1% of patients in this study reported being asked in the preoperative period how they would like postoperative pain to be treated. Similar levels have again been determined in the literature (Idvall et al., 2005; Idvall & Berg, 2008).
Pharmacological pain relief was effectively applied in this study. Some studies in the literature have reported high levels of pharmacological medication use (Yılmaz & Gurler, 2011; Celik, 2013), while others have reported lower levels (Idval & Berg, 2008).

When patients were asked about their expectations from nurses regarding pain relief, 98.1% reported having no expectations, while 1.9% expected nurses to take an interest in them. In Yılmaz and Gurler's (2011) study, 88.6% of patients reported having no expectations of nurses, while 31.7% expected them to be more understanding.

Conclusion

There are clear areas where definition and management of pain are deficient. In the light of our findings, we recommend that

- Nurses should be given in-service training regarding pain management,
- Standard forms should be used regarding description of pain and nursing approaches to patients in pain and
- Patients' pain control expectations should be identified and care should be provided in the light of those expectations.

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