ORIGINAL PAPER

Effects of Draıns on Pain, Comfort and Anxiety in Patıents Undergone Surgery

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Abstract

Backround: Surgical drains negatively affect patients' comfort, cause anxiety along with pain, as they are used to promote healing after surgery.
Purpose: This study aimed to determine pain, comfort and anxiety levels of patients with drains postoperatively.
Methodology: Research was performed with 192 patients undergone abdominal, neck, breast and open heart surgery and had surgical and underwater chest drains at the postoperative period. Patient Information Form, Numerical Pain Scale, General Comfort Questionnaire and Trait Anxiety Scale was used for collection of data. In evaluating the data, we used the t-test, variance and correlation analysis, mean, percentage and frequency.
Results: The patients' mean score of pain was 4.67±2.93, comfort was 2.75±0.29 and anxiety was 39.31±9.21. It was found statistically significant that the comfort level decreases as the pain level increases and that the patients undergone open heart surgery and with underwater chest drains have higher pain levels. It was found statistically significant that, comfort level in patients undergone abdominal or cardiac surgery is lower than patients undergone breast or neck surgery, and that the comfort level decreases as the duration of drains increases. The increasing state anxiety while pain increases and comfort decreases was found statistically significant.
Conclusions: Surgeries and drains applied after these procedures decrease the comfort level of the patients as increases the pain level. Also, pain and discomfort increase the patients' anxiety. Nurses who providing care to these patients are suggested to improve measures about pain and anxiety reduction for maintaining of comfort.

Key Words: Anxiety, Comfort, Drainage, Nursing Care, Pain.

Introductıon

Drains are widely used in order to accelerate the healing process and prevent complications in the postoperative care of patients (Scardillo, 2005). Drain types that are used most often in clinical practices are gravity drains, hemovac, jacson-pratt, penrose, redivac, t-tube and underwater chest drain (Walker, 2007, Scardillo, 2005, Charnock & Evans, 2001). Surgical drains support wound healing and prevents to develop complications by placing potential dead space, necrotic tissue, fistulas and significant fluid accumulation as well as are available in the adverse effect such as bleeding, tissue inflamation, infection, pain, loss of protein and

fluid-electrolyte, discomfort, decreasing activity, increasing anxiety and fear, prolonged hospital stay, and even death in some cases (Walker, 2007, Charnock & Evans, 2001).

Drains are removed within 24-48 hours when used for monitoring bleeding and hematoma formation, but staying for a long time they increase infection risk and develop granulation tissue around the drain. Developed granulation tissue and stimulation of the nerve endings in the area around the drain makes the removal of drain more traumatized and drain can cause pain during the stay (Puntillo & Ley, 2004, Mueller et al, 2000). Also depending on the region drains effect patients' comfort negatively by causing difficulty in breathing, restrictive movement, pain, sleep disorders and stres (Schuchert et al, 2008, Tanguy et al, 2007, Charnock & Evans, 2001, Mueller et al, 2000). In the study of Gardner et al. (2005), examining patients'experiences after cardiotoracic surgery, the pain and discomfort experienced by a patients described as " The drainage tube around my heart was awful, i could not move and even breathe." by the patient.

Comfort, defined as relief from discomfort such as pain relief and/or a state of ease and peaceful contentment by Kolcaba & Kolcaba, is considered a positive result that expected from patient (Kuguoglu & Karabacak, 2008, Kolcaba, 2001, Kolcaba&Kolcaba, 1991). Pain experienced after surgery as well as increasing the patient's anxiety, is one of the most common reasons of losing comfort and important subjects that should be handled by nurses in the care (Pritchard, 2010, Sloman et al, 2005, Charnock & Evans, 2001, Kolcaba, 1991). Especially considering the negative effects of drains on pain and comfort, realising the pain and comfort level of patients with drains after surgery and the effect of pain and comfort on each other and anxiety has an important role in regulation of nursing interventions to relieve pain and increase comfort and evaluation of expected results.

The study aimed to determine pain, comfort and anxiety level of patients with drains after surgery and the relationship between pain, comfort and anxiety.

Study Questions:

1. What is the pain level of patients with drains?
2. What is the comfort level of patients with drains?
3. What is the anxiety level of patients with drains?
4. Is there any relationship between pain, comfort and anxiety levels of patients with drains?

Methods

Study Settings and Design

This descriptive study was conducted in Trakya University, Directorate of Research and Application Center, Departments of General Surgery and Cardiovascular Surgery, between 01 March 2008 and 30 June 2010.

Ethical Considerations

This study was approved by the Ethics Commitee of Trakya University Medical Faculty. Permission to conduct the study was obtained from the Director of Nursing Services and Wards. Information about the Study was given to all patients and informed consent was obtained from the participants.

Participants

The study was performed with 192 patients between the ages of 18 and 65 with no communication problems who have accepted to participate in the study, who had drains after surgical intervention in the general surgery service (n=103) and patients who were out of postoperative intensive care in the cardiovascular surgery service and had underwater chest drain (n=89).

Data Collection and Instruments

Patient Information Form: Questions about age, sex, marital status, operation area, drains, duration of drains and problems connected drains were mentioned in this form.

Numerical Pain Scale: In this method aiming at the description of the pain by numbers, pain intensity can be defined as numbers between 0

and 10. 0 is expressed as “no pain” and 10 is expressed as “most severe pain as possible”. 1-3 was evaluated mild, 4-6 moderate and 7-10 severe pain in this study.

General Comfort Questionnaire: General Comfort Questionnaire was developed by Kolcaba in 1992. Questionnaire was created with the help of the taxonomic structure involving three levels and four dimentions of theoretical components of comfort and is used to determine the needs, evaluate the nursing implementations for increasing the comfort and achieving the expected results about increasing the comfort. Scale is Likert-type and contains 48 items. In this scale, consisting of positive and negative items, in the positive items high score (4) is high comfort and low score is low comfort. The highest total score can be taken from the scale is 192 and lowest total score is 48. The average value is determined by the total score dividing the number of items and results is indicated in distribution of 1-4. Low comfort is expressed with 1 and high comfort is expressed with 4. Compliance of the scale for Turkish population was performed in 2004 by Kuguoglu & Karabacak. Kuguoglu & Karabacak found that the Cronbach’s alpha coefficient is 0.85 and the scale reliability is high.

State Anxiety Inventory: Scale, developed in 1970 by Spielberger et al. and found valid and reliable for Turkish population by Oner ve Le Compte (1976), includes two sections consisting 40 items which were developed besed on the anxiety concept with two factors. The first 20 items in the scale measure anxiey level depending on the situation, and the items from 21 to 40 measure trait anxiey level. In this study, State Anxiety Inventory was used to determine how an individual feels at a certain time and under certain conditions. On the responses to the scale, it was asked to mark one of the choices of not at all (1), somewhat 82), moderately so (3) andvery much so (4) according to the degree of the of severity feelings, minds and/or behaviors noted by items. To assesment of the scale, the total score of the reversed statements is subtracted from the total score of the directly statements, 50, the invariant value of state anxiety scale, is added to obtained score, so that state anxiety score is achieved.

Procedure

Patients undergone abdominal, neck and breast surgery were interviewed 24 hours after the surgery, patients undergone cardiovascular surgery were interviewed after acceptance of the ward from intensive care unit, in the patient room. Patients were informed verbally about the study and then their approval was received for the participation in the study. Patients with questions about the forms and who can not fill the forms by themselves were assisted by the researchers. The data collection took about 30 minutes.

Data Analysis

Evaluation of the collected data was done with SPSS 16.0. As descriptive statistical methods, frequency, percentage, mean, and standard deviation; for evaluation of relations between the parameters, t-test, variance and correlation analysis were used. Results were evaluated in 95% confidence interval and $p<0.05$ significance level.

Results

It was found that the average age of patients was 54.32 ± 13.62 (min=18, max=70) and 55.7% percent of them was male. It was determined that 46.4% of the patients had undergone cardiac surgery and had underwater chest drains, 65.1% of the patients complained the pain depending on drains, and duration of drains was 3.65 ± 3.06 (min=1, max=25) days (Table 1). The study showed that pain intensity was 4.67±2.93 (min=0, max=10), comfort level was 2.75±0.29 (min=1.67, max=3.63) and state anxiety level was 39.31±9.21 (min=24, max=69) (Table 2). It was found statistically significant that pain levels of the patients undergone cardiac surgery (F=113.496, p=0.000) and who have underwater chest drain (t= -14.790, p= 0.000) were high. In the patients undergone neck and breast surgery, comfort level was higher (F=13.586, p=0.000) and state anxiety level was lower (F=8.861, p=0.000) than other patients. When problems experienced by the patients about drains and tubes were examined, it was determined that complaining the pain by patients with high level of the pain (F=24.916, p=0.000) and lower state anxiety level of the patients complaining the

sensation of stinging and retraction (F=3.207, p=0.044) were statistically significant (Table 3).

When duration of drain and pain level, comfort level and anxiety level, and relationship between them was evaluated, it was found that general comfort decreased as state anxiety level(r=-0.696, p=0.000), pain level (r=-0.210, p=0.003) and duration of drains increased (r=-0.144, p=0.046) and state anxiety level increased as the pain level increased (r=0.341, p=0.000) (Table 4).

Table 1. Characteristics of The Patients with Drains

Characteristics	X±SS	Min	Max
Age	54.32 ± 13.62	18	70
Duration of drainage	3.65 ± 3.06	1	25
Characteristics		**n**	**%**
Sex (n/%)	Female	85	44.3
	Male	107	55.7
Region of the surgery (n/%)	Abdominal	66	34.4
	Neck and breast	37	19.3
	Thorax	89	46.4
Drain/tube (n/%)	Surgical Drain	103	53.6
	Underwater chest drain	89	46.4
Problems depending on drains/tubes	Mobility difficulties	24	16.1
	Sensation of stinging and retraction	28	18.8
	Pain	97	65.1

Table 2. Pain, Comfort and Anxiety Experiences of the Patients with Drains

	X±SS	Min	Max
Pain	4.67±2.93	0	10
General Comfort (X±SS, Min/Max)	2.75±0.29	1.67	3.63
State Anxiety (X±SS, Min/Max)	39.31±9.21	24	69

Table 3. Comparison of Patients' Experiences

		Pain		State Anxiety		General Comfort	
Characteristics		**X±(SD)**	**Test**	**X±(SD)**	**Test**	**X±(SD)**	**Test**
Region of the surgery	Abdominal	3.24±2.68	**113.496** * **p<0.001**	41.95±10.22	**8.861** * **p<0.001**	2.62±0.32	**13.586** * **P<0.001**
	Neck and breast	1.78±1.81		34.37±8.62		2.91±0.29	
	Thorax	6.93±1.34		39.48±6.43		2.78±0.23	
Drain/tube	Surgical Drain	2.71±2.50	**-14.790** ** **P<0.001**	39.23±10.30	-0.187 ** p>0.05	2.72±0.34	-1.462** p>0.05
	Underwater chest drain	6.93±1.34		39.48±6.43		2.78±0.23	
Problems depending on drains/tubes	Mobility difficulties	3.33±2.44	**24.916** * **p<0.001**	39.00±7.82	**3.207** * **p<0.05**	2.74±0.27	0.775 * p>0.05
	Sensation of stinging and retraction	3.60±2.98		35.40±11.23		2.81±0.38	
	Pain	6.34±2.13		40.81±8.00		2.74±0.23	

* One-Way ANOVA ** Student t-test

Table 4. Correlation between pain, comfort and anxiety

	Pain	State Anxiety	General Comfort
Pain	-	**0.341** **p<0.001**	**-0.210** **p<0.01**
Duration of drainage	0.082 p>0.05	0.113 p>0.05	**-0.144** **p<0.05**
General Comfort	**-0.210** **p<0.01**	**-0.696** **p<0.001**	-

Spearman Correlation

Dıscussıon

In this study, examining pain, comfort and anxiety levels of surgical patients with drains, it was detected that patients' pain level was moderate, general comfort level was high and anxiety level was moderate. It is stated that in the literature that %26-33 of the patients experience moderate pain at rest in postoperative period (Cocelli et al, 2008). Puntillo & Ley (2004) and Mueller et al. (2000), in their studies on patients undergone cardiac surgery and with underwater chest drains, pain levels at the first three postoperative days were similar to our study. Similarly to our study, Ustundag (2009) in her studies on patients undergone coronary artery bypass graft surgery, indicates that comfort level of the patients was high. Although it is addressed in the literature that discomfort and pain are common after cardiac surgery, in Owen & Gould's (1997) study, investigating experiences of patients with underwater chest drains, most of the patients reported that their comfort did not compromised, unless they were coughing and bending towards the drain. In Closs & Briggs's (2002) study, it was stated that drains were reported as a cause of discomfort by the patients undergone orthopedic surgery. It is mentioned in the literature that, patients undergone surgical procedures may not only face a physical trauma such as surgery, but they may also live in fear and anxiety (Pritchard, 2010). It was determined in our study that the patients experienced anxiety in a moderate level. In their studies, Binns-Turner et al. (2011) working on the patients undergone mastectomy and Ustundag (2009) working on patients undergone cardiac surgery reported that state anxiety levels of the patients were moderate.

In our study, pain level of the patients who undergone cardiac surgery, with underwater chest drain and complaining the pain was higher than other patients. Similarly, Isikli (2009) and Owen & Gould (1997), in their study examining experiences of patients with underwater chest drains, found that most of the patients experienced high level pain. Tissue trauma that reveals the algogenic substances such as bradykinin, serotonin and prostoglandin during surgery and/or insertion of the underwater chest drain, as well as the pressure that drain makes on nerve endings in the parietal pleura, causes formation of the pain or an increase in the severity of the pain (Buyukyilmaz & Asti, 2009, Ustundag, 2009, Mueller et al, 2000, Owen & Gould, 1997). In relation to the diaphragm proximity of the incision area, experiencing more intense pain especially in the upper abdominal and thoracic surgical procedures brings about higher anxiety levels of this patients, as it is in our study (Cocelli et al, 2008).

As an unavoidable feeling the pain is a result of the surgery and one of the important causes impairing the emotional comfort (Williams & Irurita, 2006). Also Idvall et al. (2002) mentioned that they found the quality of care insufficient in patients experienced more pain than expected. Considering the density of pain experienced in abdominal and thoracic surgical procedures, it is significant in our study that comfort level of the patients is lower. Pasero & McCaffery (2003) reported that paying special attention for achieving and maintaining the comfort is best

possible key to the pain relief. In their study on the patients with underwater chest drains, Owen & Gould (1997) also reported that patients suffering pain had discomfort.

It is implicated that in the literature, pain experienced postoperative period causes stress and anxiety as well as adversely affects patients'comfort (Topcu & Findik, 2012, Cocelli et al, 2008). Also in our study, it is accordance with the literature that when pain increases, the anxiety level increases and general comfort level decreases. In the study performed on the patients with underwater chest drains by Mueller et al. (2000) it was reported that as the time of the drainage got longer, the pain got denser. Considering the negative effects of the pain on comfort, in our study, it is in accordance with the literature that general comfort decreases as prolongation of drainage time increases.

Lımıtatıons

In this study, patients from different wards, different nursing care and service conditions and different drain types made difficult to evaluate effects of drains on pain and comfort. In another study, determination of the sample groups according to the drain types and presence of the drains in the patients after surgery and then re-evaluation of the pain and comfort and re-investigation relationship between them would be useful.

Conclusıon

In this study performed to determinate the pain, comfort and anxiety levels, it was found that pain level of the patients was moderate, general comfort level was high and anxiety level was moderate. It was detected that pain, comfort levels and anxiety levels were affected by each other. It was found that comfort decreases when duration of the drainage increases. Especially in the patients undergone abdominal and thoracic surgery, comfort level was low. With the aim of providing patients comfort and maintaining it in the postoperative period, regular assessment of patients' comfort levels and planing the nursing care according to the obtained results; training of nurses and patients about control of the pain that affects comfort and coping with anxiety; preventing longer duration of the drainage than necessary in order to providing comfort of the patients as soon as possible; and continuous evaluation of effectiveness on the nursing care on maintaining the comfort are recommended.

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