

Original Article

Exploring Factors That Affected Pain Severity in Postoperative Period

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Abstract

Background: Postoperative pain occurs in most of the patients and is associated with outcomes of health economics.

Aims: This study was designed in order to explore factors that affected pain severity in postoperative period among patients who were operated at otorhinolaryngology clinic.

Methodology: This descriptive study was done with 191 patients who stayed at otorhinolaryngology clinic during postoperative period. Patients who were voluntary to join the study and were able to communicate were included in the study. Study data were collected using Information Request Form designed by the researchers and Visual Analogue Scale for pain used to measure pain severity during postoperative period. The data were assessed using percentages, average scores and One way-Anova analyses.

Results: It was found that average age of the participating patients was 32.9 ± 12.8 years, 58.1% of them were male, 48.7% of them had high school degree, 44% of them underwent septal deviation operation and 95.3% of the did not suffer from any complications. It was identified that 51.8% of the patients had moderate level of pain threshold and 37.7% of them suffered from very low level of pain. It was noted that 91% of the patients indicated operation site as pain point, 72.8% of them indicated pain length as intermittent, 37.1% of them indicated pain quality as tingling, 47.6% of them had pain while coughing and 40.8% of them described pain as disturbing. It was seen that pain severity of those who were female, had endoscopic dacryocystorhinostomy operation, had attendants, underwent operation previously, often used pain killers and had intermittent pain feelings was higher.

Conclusions: It was found that nearly half of the patients in the postoperative period had pain at a disturbing level. It was noted that sex of the patients, type of the operation, presence or absence of attendants, having previous operation, frequency of pain killer and length of pain affected pain. It may be recommended that nurses should plan nursing interventions against the factors determined for the otorhinolaryngology patients during postoperative period in order to relieve pain severity.

Key Words: Postoperative period, pain severity, nursing.

Introduction

Over the world, surgical interventions are done for millions of people every year and they suffer from postoperative pain at various degrees. Although there have been great improvements in treating chronic pain and its treatment for the past 20 years,

postoperative pain still continues to be an unsolved problem (Uyer, 2002; Buyukyılmaz & Astı, 2009).

Surgery and anesthesia are health services that reduce risk for numerous disabilities and death each year over the world and it is estimated that need for these services will be increasing for the

next 10 years. In the world, nearly 313 millions operations were performed.

Postoperative pain occurs in most of the patients and is associated with outcomes of health economics. Following an operation, acute pain that is mismanaged is the reason for the development of chronic pain (Gan, 2017).

In the world, each year more than 230 million people are operated and the number of these people increases each year. Operations generally cause postoperative pain and therefore this pain needs eliminating as quickly and effectively as possible so that it can be reduced and healed, rehabilitation process can be supported and complications can be prevented. However, postoperative clinical pain management is far from being successful despite increased scientific evidences in this field. Many patients suffer from severe pain after the operation (Pogatzki-Zahn et al., 2017). The studies done report that 75% of the patients experiences pain after operations and nearly 30% of them suffers from moderate or intense postoperative pain (Fletcher et al., 2008; Benhamou et al., 2008; Awan & Durrani, 2015).

Pain is a subjective experience that all people experience during their lives. Postoperative pain is an acute pain that starts with a surgical trauma, decreases gradually and ends in tissue healing (Mac Lellan, 2006; Uyer, 2002; Buyukyılmaz & Astı, 2009). Acute pain is a pain that occurs due to previous diseases or surgical interventions or as a result of both in a patient that undergoes a surgery. Acute pain is caused by tissue damage and is often associated with some degree of inflammation (Kafkia et al. 2018). In postoperative pain evaluation, the aim is to use correct treatments. Pain changes from individual to individual and from culture to culture. Despite recent significant advancements in medicine, pain has still been one of the crucial problems. Inefficacy in pain studies and treatments has caused pain to remain a problem and a negative experience (Aslan, 1998). In pain assessment; first patients' demographic history, past pain history, treatments and general amnesia should be taken into consideration (TARD, 2006).

Pain, a complaint which disturbs everybody and of which they want to get rid at once, should be well diagnosed so that it can be effectively handled and eliminated (Sabuncu & Akca Ay, 2010). Age, sex,

culture, personal characteristics, past experiences, meaning of situations that lead to pain, family and social support status, attention and placebo can be named as factors that affect one's pain perception (Potter & Perry, 1997). Besides, pain severity is also rather important. In assessing pain severity, one dimension and multi dimension scales can be used (Eti Aslan, 2006). Since pain shows a dynamic and changing feature, its diagnosis should be an ongoing process and data to be obtained should be registered. Thus, efficacy of pain interventions can be documented and a communication among team members can be achieved (Sabuncu & Akca Ay, 2010). Pharmacological control of pain is performed under the responsibility of a team. Role of nurses in this team is to assess patient's response to the treatment and to administer the treatment recommended (Eti Aslan, 2006). In postoperative pain diagnosis and treatment; the surgical intervention as well as pain severity, pain length, pain site, factors that affect pain, effect of pain upon activities of daily life and knowledge level of patients about operation and its outcomes are important dimensions (Roper et al., 1996; Uyer, 2002; Buyukyılmaz & Astı, 2009). Nurses' having sufficient knowledge and experience about pain will make it possible to design standard pain control methods (Cocelli et al., 2008). A nurse who assesses patient's pain severity should provide proper care. She should take factors that influence pain severity in care into consideration. With an effective nursing care, patient's postoperative pain severity should be minimized and thus quality of their lives should be maximized.

Methods

This descriptive study was done with postoperative 191 patients who were hospitalized at otorhinolaryngology clinic of research hospitals of two universities. Patients who volunteered to join the study, were aged at least 18 years and were able to communicate were recruited for the study. Study data were collected using Information Request Form developed by the researchers and Visual Analogue Scale for pain used to measure postoperative pain severity.

Information Request Form: The form was consisted of questions addressing age, sex, educational status, financial status, type of

operation, presence or absence of previous operations, presence or absence of chronic diseases, number of analgesics ordered, pain threshold, pain length, pain quality.

Visual Analogue Scale for pain: It is a self-rated scale of ten centimeters line in length that represents a continuum between “no pain” and “worst pain.” and the scale is marked by patients themselves (Eti Aslan, 2006). It is used to measure pain severity and to monitor pain (TARD, 2006). According to VAS, pain severity is rated as “no pain” with 0 point and “worst pain ever” 10 point (10 cm line in length) (Hawker et al., 2011). Pain severity ranges from mild severity pain (<3), moderate severity pain (3-6) to extreme severity pain (>6) (Uzunoglu & Cicin, 2011).

Official approvals to undertake this study were gained from the organizations where the study was done. Subjects gave their informed oral consents to take part in the study. To assess the data obtained, statistical analyses were performed using SPSS 15.0 software for Windows. The data were assessed using percentages, average scores and One way-Anova analyses. Results were considered significant at $p < 0.05$.

Results

It was identified that the participating patients’ average age was 32.9 ± 12.8 years, 58.1% of them were male patients, 48.7% of them had high school

graduation and 65.4% of them had an income equal to expenses (Table 1). It was found that 84.8% of the patients did not have any chronic diseases, 44% of them underwent septal deviation operation, 95.3% of them did not suffer from any complications, 88.5% of them were operated under general anesthesia, 49.2% of them did not want any analgesics and 64.9% of them did not have any operations beforehand (Table 2).

It was found that patients’ average score of pain severity was 4.4 ± 1.8 , 51.8% of them had a moderate level of pain threshold and 37.7% of them had very low level of pain in daily life. It was identified that 91% of the patients told that pain was in the operation site, 72.8% of them told that their pain was intermittent, 37.1% of them told that their pain was in the form of tingling, 47.6% of them had pain while coughing and 40.8% of them described pain as disturbing (Table 3). Among the participating patients; it was seen that pain severity of those who were female, had endoscopic dacryocystorhinostomy operation, had attendants, underwent operation previously, often used pain killers and had intermittent pain feelings was higher (Table 4).

Table 1. Distribution of Patients’ Socio-demographic Characteristics (N=191)

Socio-demographic Characteristics	Number	%
Age 32.9±12.8 (min=18, max=68)		
18-34 years	115	60.2
35-49 years	46	24.1
50-64 years	26	13.6
65 ≥ years	4	2.1
Sex		
Female	80	41.9
Male	111	58.1
Educational Status		
Primary School / Secondary School	42	22.0
High School)	93	48.7
Higher Education (University)	56	29.3
Income Status Perception		
Income lower than expenses	41	21.5
Income equal to expenses	125	65.4
Income higher than expenses	25	13.1

Table 2. Distribution of Characteristics of Patients' Diseases and Operations (N=191)

Disease and Surgery Characteristics	Number	%
Presence of Chronic Disease		
Yes	29	15.2
No	162	84.8
Chronic Disease (n=29)*		
Hepatitis B	2	1.8
Asthma	2	1.8
Hypertension	13	6.0
Diabetes	11	5.7
COPD	1	0.9
Name of the Operation		
Septum deviation	84	44.0
Septoplasty	38	19.9
Functional endoscopic sinus surgery	20	10.5
Tympanoplasty	16	8.4
Tonsillectomy	10	5.2
Tumor superficial resection	9	4.7
Endoscopic DSR	7	3.7
Ventilation tube placement	4	2.1
Adenoidectomy (adenoid)	3	1.6
Having complications during operation		
No	182	95.3
Yes	9	4.7
Type of anesthesia used in the surgery		
General	169	88.5
Local	22	11.5
Number of analgesics ordered 1.6±0.7 (min=0, max=5)		
1	94	49.2
2	74	38.7
3	20	10.5
4	1	0.5
5	1	0.5
None	1	0.5
Route of administration of analgesics ordered (n=190)**		
Oral	102	53.6
IV	154	81.0
Presence of Attendants		
Yes	163	85.3
No	28	14.7
Status of previous Surgery		
Yes	67	35.1
No	124	64.9

Previous operations (n=67) ***		
Appendectomy	13	10.4
Gallbladder	12	9.6
Tonsillectomy	11	8.8
Caesarian	11	8.8
Hernia (Inguinal, umbilical)	8	6.4
Lumber disc hernia	6	4.8
Thyroidectomy	5	4.0
Adenoidectomy (adenoid)	4	3.2
Haemorrhoidectomy	3	2.4
Septum deviation	2	1.6
Pilonidal sinus	1	0.8
Gonarthrotomy	1	0.8

* More than one answer was given. Percentages were calculated with n=29. ** More than one answer was given. Percentages were calculated with n=190. *** More than one answer was given. Percentages were calculated with n=67.

Table 3. Distribution of Characteristics of Patients' Postoperative Pain and Pain Severity (N=191)

Characteristics of Patients' Postoperative Pain and Pain Severity	Number	%
Pain Severity Range 4.4±1.8 (min=1, max=10)		
Slight pain (<3)	53	27.7
Moderate pain (3-6)	99	51.8
Severe pain (>6)	39	20.4
Frequency of pain experience in daily life		
Often	13	6.8
Sometimes	60	31.4
Rarely	72	37.7
Never	46	24.1
Status of use of pain killer		
Often	13	6.8
Sometimes	65	34.0
Rarely	76	39.8
Never	37	19.4
Pain site (n=191) ****		
Surgery site	174	91.0
Headache	146	76.4
Whole body	10	5.2
Back pain	3	1.5
Throat ache	1	0.5
Pain Length		
Intermittent	139	72.8
Continuous	52	27.2
Pain Quality (n=191) ****		
Tingling	71	37.1
Throbbing	56	29.3
Stinging	38	19.8
Burning	28	14.6
Paraesthesia	18	9.4
The most frequent pain occurrence while (n=191) ****		
Coughing	91	47.6
Getting up from bed	78	40.8

Changing position	47	24.6
Dressing the wound	37	19.3
Swallowing	20	10.4
Walking	14	7.3
Lying in bed	13	6.8
Talking	4	2.0
Laughing	1	0.5
Description of Pain		
Slight	45	23.6
Disturbing	78	40.8
Severe	41	21.5
Very severe	25	13.1
Unbearable	2	1.0

**** More than one answer was given. Percentages were calculated with n=191.

Table 4. Comparison of Patients' Descriptive Characteristics and Pain Severity (N=191)

Descriptive characteristics	N (%)	Pain severity	Test p
Age			
18-34 years	115 (60.2)	4.4±2.0	.749
35-49 years	46 (24.1)	4.8±2.0	
50-64 years	26 (13.6)	4.6±1.8	
65 ≥years	4 (2.1)	4.0±2.2	
Sex			
Female	80 (41.9)	5.0±2.0	7.386
Male	111 (58.1)	4.2±1.8	
Educational Status			
Primary School / Secondary School	42 (22.0)	4.4±1.8	.063
High School)	93 (48.7)	4.4±2.0	
Higher Education (University)	56 (29.3)	4.4±1.8	
Income Status Perception			
Income lower than expenses	41 (21.5)	4.4±1.8	.311
Income equal to expenses	125 (65.4)	4.6±2.0	
Income higher than expenses	25 (13.1)	4.2±1.6	
Presence of Chronic Disease			
Yes	29 (15.2)	4.8±2.0	1.061
No	162 (84.8)	4.4±1.8	
Name of the Operation			
Septum deviation	84 (44.0)	4.2±1.8	2.200
Septoplasty	38 (19.9)	2.4±1.8	
Functional endoscopic sinus surgery	20 (10.5)	4.8±2.0	
Tympanoplasty	16 (8.4)	5.0±1.8	
Tonsillectomy	10 (5.2)	5.0±2.0	
Tumor superficial resection	9 (4.7)	4.4±1.2	
Endoscopic DSR	7 (3.7)	6.2±1.0	
Ventilation tube placement	4 (2.1)	4.0±2.2	
Adenoidectomy (adenoid)	3 (1.6)	4.6±1.0	

Having complications during operation			
No	182 (95.3)	5.0±2.2	.758
Yes	9 (4.7)	4.4±1.8	>0.05
Type of anesthesia used in the surgery			
General	169 (88.5)	4.0±1.6	1.282
Local	22 (11.5)	4.6±2.0	>0.05
Numbers of analgesics ordered			
1	94 (49.2)	2.0±0.0	
2	74 (38.7)	4.4±2.0	.666
3	20 (10.5)	4.4±1.6	
4	1 (0.5)	4.6±2.2	>0.05
5	1 (0.5)	2.0±0.0	
None	1 (0.5)	4.0±0.0	
Presence of Attendants			
Yes	163 (85.3)	4.6±2.0	6.880
No	28 (14.7)	2.6±1.2	<0.01
Pain Severity Range	4.4±1.8		
(min=1, max=10)			
Slight pain (<3)	53 (27.7)	4.0±2.0	2.516
Moderate pain (3-6)	99 (51.8)	4.6±1.8	>0.05
Severe pain (>6)	39 (20.4)	4.8±2.2	
Status of previous Surgery			
Yes	67 (35.1)	5.0±2.2	9.379
No	124 (64.9)	4.2±1.8	<0.01
Frequency of pain experience in daily life			
Often	13 (6.8)	5.4±1.8	1.862
Sometimes	60 (31.4)	4.6±1.8	>0.05
Rarely	72 (37.7)	4.4±1.8	
Never	46 (24.1)	4.0±2.0	
Status of use of pain killer			
Often	13 (6.8)	6.0±1.4	3.871
Sometimes	65 (34.0)	4.6±2.0	
Rarely	76 (39.8)	4.4±1.8	<0.01
Never	37 (19.4)	3.8±1.8	
Pain Length			
Intermittent	52 (27.2)	6.2±1.8	78.148
Continuous	139 (72.8)	2.8±1.6	<0.001

Discussion

Postoperative pain is an acute pain that starts with a surgical trauma, decreases gradually and ends in tissue healing. In patient's pain evaluation, the aim is to achieve correct treatment while evaluating. In pain assessment; first patients' demographic history, past pain history, treatments and general amnesia should be taken into consideration (TARD, 2006).

It was noted that age group of the participant patients did not affect average score of pain severity. According to the literature, pain can be experienced at every age (Aslan, 1998). In a study done, it was reported that age affected patients' pain severity (Temiz & Ozer, 2015). We are of the opinion that postoperative pain influences people of all ages, as a result of which the above mentioned finding was found in the current study.

According to sex, it was found that there was a statistically significant difference among average scores of pain severity. It was seen that pain severity of female patients was higher. In the relevant studies, it was emphasized that male patients tolerated pain better but female patients demanded for and took more analgesics in acute pain and gave higher level of emotional response to pain (Aslan, 1998). It is thought that genetic factors and sex influence response to pain experience and analgesic treatment. Besides, it is also argued that sex affects patients' access to treatment services and health care staff's pain assessment approaches (TARD, 2006, Potter & Perry 1997; Dikmen, 2013). Similar to the finding of the current study, many studies reported that sex affected pain severity (Temiz & Ozer, 2015; Lesin et al., 2016). Likewise, in this current study, female patients had a higher level of pain severity; which concurred with literature knowledge.

It was found that there was not a statistically significant difference among average scores of pain severity in terms of patients' educational status. In a study undertaken by Temiz and Ozer (2015), it was concluded that patients' pain severity did not differ in terms of educational status. We are of the opinion that educational status does not change pain severity because pain is experienced by individuals of all ages.

Socio-economical status influences patients' access to pain treatment and health care staff's pain assessment (TARD, 2006). In the current study, it was identified that there was not a significant difference between patients' income status and average scores of pain severity. Every patient with pain benefits from health care services regardless of their economical status, which –we think- was effective upon this result.

It was identified that there was no significant difference between presence of a chronic disease and pain severity. In a study done, it was found that presence of a chronic disease affected postoperative pain severity (Temiz & Ozer, 2015). We are of the opinion that the number of those with a chronic disease (15.2%) was small; which might have affected this finding.

It was noted that a statistically significant difference existed between average score of pain severity and type of operation that patient underwent. It was seen that patients with endoscopic dacryocystorhinostomy operation demonstrated higher level of pain threshold. Likewise, a study done reported that type of operation affected patients' pain severity (Temiz & Ozer, 2015). Patients' pain severity is influenced by the site of operation.

It was identified that there was no significant difference between presence of surgical complication and average score of pain severity. We are of the opinion that the number of those with a surgical complication (4.7%) was small; which might have affected this finding.

It was seen that no significant difference was found between anesthesia type used in the operation and average score of pain severity. We are of the opinion that number of patients to whom general anesthesia was administered (88.5%) was bigger; which did not influence pain severity.

It was noted that a statistically significant difference did not exist between number of analgesics ordered and pain severity. It should be kept in mind that postoperative pain is one of the most encountered complications. Postoperative pain and type and amount of analgesics should be determined beforehand, the intervention should be planned preoperatively as well as patients' physical

and psychological status should be considered (Kırdemir & Ozorak 2011). Use of analgesics might not have affected pain severity because most of the patients (49.2%) used one analgesics and more than half of them (51.8%) suffered from moderate pain severity.

It was identified that there was a statistically significant difference between presence of patients' attendant and pain severity. Pain severity of those patients with attendants was higher. In our society, individuals who experience pain may pretend to have higher level of pain severity so that they can receive bigger help and support from their significant others.

It was noted that a statistically significant difference did not exist between pain severity range and average score of pain severity. The studies done indicated that up to 75% of the patients suffered from pain after surgical operations and almost 30% of them experienced moderate to intense level of postoperative pain (Fletcher et al., 2008; Benhamou et al., 2008; Awan & Durrani, 2015). 34.95% of the patients who underwent surgical operation were found to have moderate level of pain (Ayhan, 2015; Ayhan ve Kursun 2017). In the current study, too, most of the patients had moderate level of pain.

It was seen that there was a statistically significant difference between having operation previously and average score of pain severity and patients who underwent operation previously demonstrated higher pain severity. Similar to the finding of the current study, some studies too explored that patients who had operation previously showed higher pain severity as compared to those who did not have operation previously (Ayhan, 2015; Temiz & Ozer, 2015; Ayhan ve Kursun 2017).

It was seen that there was no a statistically significant difference between frequency of pain experience in daily life and pain severity. Since pain experienced in daily life is the one that people are used to and tolerate and they undergo postoperative pain for the first time in their life after operation, their pain severity may not have been influenced.

It was identified that there was a statistically significant difference between frequency of use of painkillers and pain severity. In a study done, it was reported that pain of 89.32% of the patients

who underwent a surgical operation was relieved by painkillers (Ayhan, 2015; Ayhan ve Kursun 2017). We suggest that genetic factors and sex influence response to pain experience and analgesic treatment. Additionally; race, sex and socio-economical status affect patients' access to pain treatment and health care personnel's' pain assessment approaches (TARD, 2006).

It was found that average score of pain severity of the patients whose pain length is intermittent was higher. Since patients whose pain is continuous can tolerate pain better, their pain severity goes down.

In this current study, it was noted that average score of patients' pain severity was 4.4 ± 1.8 . In a study, too, patients showed a similar pain severity score postoperatively and on VAS their average pain severity score was 4.40 ± 2.72 ; which was similar to our finding (Ayhan, 2015; Ayhan ve Kursun 2017). In another study, average VAS pain score of the cases was 5.2 ± 2.6 at the time of hospitalization while their average VAS pain score reduced to 2.2 ± 1.8 at the time of hospital discharge (Arslan et al., 2016). In another study, one hundred nine (46.1%) reported severe pain on Visual Analog Scale (VAS ≥ 8) (Elsous et al. 2018). Studies undertaken are in line with the current study.

Conclusions

It was identified that nearly half of the patients in the postoperative period had pain at a disturbing level. Most of the patients demonstrated moderate level of pain. It was noted that sex of the patients, type of the operation, presence or absence of attendants, having previous operation, frequency of pain killer and length of pain affected pain severity. In light of these results, it may be recommended that nurses should plan nursing interventions against the factors determined for the otorhinolaryngology patients during postoperative period in order to decrease pain severity and should create an awareness towards independent markers associated with pain occurrence.

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