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Pain Experiences among Postoperative Patients Admitted in Surgical Ward of Teaching Hospital, Chitwan

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Abstract

Patients experience moderate to severe pain during the first 24 hours after surgery. The purpose of this study was to assess pain experience among postoperative patients admitted in surgical ward of teaching hospital, Chitwan, Nepal.

A descriptive cross-sectional study was conducted among 171 purposively selected postoperative patients who had undergone surgery. Data was collected through interview method using modified pre-tested Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) and patients' charts were reviewed for the clinical information. Data were analyzed using descriptive statistics, χ^2 test and Spearman correlation test.

The results indicated that about 95.4% of patients reported postoperative pain during the first 24 hour after surgery with the mean pain intensity score 4.13 ± 2.23 . Of these patients, 46.2% had moderate and 13.5% had severe pain. It was positively associated with the interference in daily physical activities and anxious feeling. More than two third (67.3%) were very satisfied with their pain management. Both pain intensity and satisfaction with pain management were significantly associated with the type of surgery. However, there was no significant relationship between pain intensity score and patients' satisfaction with overall pain management (Spearman correlation -0.085, 95% CI: -0.233 to 0.063).

Moderate to severe pain experience is common among the post-operative patients despite of using pharmacological pain management strategy. Hence, additional efforts are required to reduce post-operative pain which will ultimately increase the patients' physical and emotional conditions.

Keywords: pain experiences, postoperative pain, patients, surgical

Introduction

Acute pain after surgery and trauma is a major problem worldwide. Most patients who undergo surgical procedures experience acute postoperative pain and it is an ongoing issue for postsurgical patients (Tocher, Rodgers, Smith, Watt, & Dickson, 2012). Maximal post-operative pain

occurs during the first 24 hours after surgery (Subramanian, et al., 2017; Shrestha, 2014) and usually diminishes significantly by 48 hours (Nettina, 2006).

Experience of postoperative pain varies among patients according to ethnicity, education and pre-operative information (Woldehaimanot, Eshetie, & Kerie, 2014). Evidence have shown that pain intensity is severe to worst on first post-operative day whereas moderate to severe pain intensity in second post-operative day. Patients' education and waiting time for pain medicine are also associated with the pain intensity of surgical patients (Shrestha, 2014). Tocher et al. (2012) reported that younger female experience severe and enduring pain compared to older one. Likewise, Fatma and Serife (2017) found that the patients with previous history of surgery had lower pain severity scores than those patients with no previous history of surgery.

Pain still remains an issue among surgical patients despite an increase focus on pain management programs and the development of new standards for pain management (Svensson, Sjöström, & Haljamae, 2012; Apfelbaum, Chen, Mehta, & Gan, 2003). Ineffective pain management may lead to postsurgical complications such as deep vein thrombosis, pulmonary embolus, and pneumonia which negatively affect patient's welfare, the hospital performance and increase the cost of care (Wells, Pasero & McCaffery, 2008).

Effective pain management focusing on pharmacological as well as non-pharmacological measures is essential in the post-operative period to ensure patient's comfort and to minimize potential complications (Mackintosh, 2007) and to enhance patients' satisfaction towards pain management (Mitsiou, 2013). In addition, nursing education, patient care and physician responsiveness are the key success of any pain management (Ramsay, 2000). Evidences have shown that adequacy of teaching receive and type of therapy, preoperative information, pre-operative expectation and actual



experience of pain relief and the overall pain experience are the factors associated with the satisfaction towards pain management (Bozimowski, 2012; Severson, Sjostrom & Haljamae, 2012; Mitsiou, 2013).

Joint Commission on Accreditation of Healthcare Organizations (2001) recommended that pain should be assessed in all patients and should be managed aggressively and effectively. Moreover, assessment of patients' experience of pain is a vital component in providing effective pain management. Many studies conducted in other setting reported that postoperative patients experience high intensity of surgical pain and limited studies are conducted in Nepal. Therefore, this study was carried out to find out patients' experience of pain and satisfaction with postoperative pain management.

Materials and Methods

A cross-sectional study was carried out to explore pain experience among postoperative patients admitted in surgical ward of Chitwan Medical College Teaching Hospital (CMC-TH). The sample was estimated by using WHO Sample Size Determination in Health Studies" a practical manual, based on 48% prevalence (Shrestha, 2014) with 95% confidence interval and 15% relative precision. Desired sample size was 171 and purposive sampling technique was used to select the study sample. Those post-operative patients aged 18 years and above admitted in surgical ward, were able to self-report their condition and willing to participate were included in the study. Those patients who had cognitive impairment, critically ill, and had communication problem were excluded from the study.

The data were collected by the researchers using the modified form of the Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) through face to face interview method. Patients were interviewed on second post-operative day and records were reviewed for the clinical information such as type of surgery, type of anesthesia, duration of surgery as well as treatment measures used for post operative pain management. The entire study period was September, 2016 to February, 2017. Prior to data collection, ethical approval was taken from Chitwan Medical College-Institutional Review Committee (CMC-IRC). All participants were informed about the purpose of the study and written informed consent was obtained from the patients before data collection.

All collected data were checked daily for its completeness, consistency and accuracy. The Statistical Package for Social Sciences (SPSS) for windows version 17.0 was used for data entry and analysis. The patient characteristic variables were evaluated using descriptive statistics (i.e., mean, standard deviation, frequency,) and inferential statistics such as chi-square test was used to find the association between variables.

Results

Among 171 patients, the mean age of patients was 40.40 years (SD 16.43). Majorities of the patients were female (56.7%), literate (71.9%), Hindu (84.2%) and married (84.8%). Highest percentage (76%) of the patients had undergone gastrointestinal surgery and more than half (55.0%) had received spinal anesthesia. In addition, only 16.4% of patients had the history of previous surgery. Moreover, 18.1% of patients were suffering from other health problems.

Table 1: Patients' Socio-demographic and Clinical Characteristics

| Socio-demographic Characteristics | Frequency (%) | Clinical Characteristics | Frequency (%) |
|-----------------------------------|---------------|--------------------------------------|---------------|
| | | n = 171 | |
| Sex | | Types of surgery | |
| Male | 74 (43.3) | Gastrointestinal | 130 (76.0) |
| Female | 97 (56.7) | Others | 41 (24.0) |
| Education | | Type of anesthesia | |
| Illiterate | 48 (28.1) | General | 77 (45.0) |
| Literate | 123 (71.9) | Spinal | 94 (55.0) |
| Religion | | History of previous surgery | |
| Hindu | 144 (84.2) | Yes | 28 (16.4) |
| Non Hindu | 27 (15.8) | No | 143 (83.6) |
| Marital status | | History other health problems | |
| Married | 145 (84.8) | Yes | 31 (18.1) |
| Unmarried | 26 (15.2) | No | 140 (81.9) |

Mean Age \pm SD=40.40 years \pm 16.43; Max= 76 yrs; Min= 18yrs, Other health problem: HTN, DM, COPD, Asthma



The table 2 depicts patients' experience of post-operative pain intensity. The mean score of patients' experience of pain intensity during first 24 hours after surgery was 4.13 ± 2.23 . Majority (95.4%) of patients reported postoperative pain during the first 24 hours after surgery. Among them, nearly half (46.2%) of the patients reported moderate pain and 13.5% reported severe pain during the first 24 hours after surgery whereas only 4.7% reported no pain experience after surgery.

All patients received routine intravenous analgesics followed by oral route for the management of postoperative pain. Most (91.2%) of the patients reported that a health care professionals asked frequently with them about their pain. However, majority of the patients reported that they did not receive any preoperative (57.9%) and postoperative information (64.3%) regarding pain management (not shown in table).

Table 2: Patients' Experience of Post-operative Pain Intensity

| Pain Intensity | Number (n=171) | Percentage (%) |
|----------------|----------------|----------------|
| No | 8 | 4.7 |
| Mild | 61 | 35.7 |
| Moderate | 79 | 46.2 |
| Severe | 23 | 13.5 |

Mean \pm SD = 4.13 ± 2.23

Pain Intensity Scale: 0-no pain, 10-worst pain

Table 3 shows that there was significant positive correlation between the pain intensity score in the first 24 hours and interference of physical activities such as doing activities in bed e.g. turning, sitting up, repositioning ($r = 0.289$ & $p < 0.01$), doing activities out of bed e.g. walking, sitting in a chair, standing ($r = 0.282$ & $p < 0.01$) and falling asleep ($r = 0.289$ & $p < 0.01$). Similarly, there is statistically significant positive correlation found between pain intensity score and anxious feeling during the first 24 hour after surgery ($r = 0.208$ & $p < 0.01$).

Table 3: Relationship between Pain Intensity Score and Activities of patients

n = 163

| Activities | Pain Intensity Score | |
|--|----------------------|---------|
| | r | p value |
| Physical Activities | | |
| Pain interfered from doing activities in bed | 0.289** | <0.01 |
| Pain interfered from doing activities out of bed | 0.282** | <0.01 |
| Pain interfered from falling asleep | 0.225** | <0.004 |
| Pain interfered from staying asleep | 0.118 | 0.133 |
| Emotional Activities | | |
| Pain caused to feel anxious | 0.208** | <0.008 |
| Pain caused to feel depressed | 0.148 | 0.059 |
| Pain caused to feel frightened | 0.087 | 0.270 |
| Pain caused to feel helpless | 0.114 | 0.148 |

**Spearman Rank Correlation

p value is significant at 0.01 level (2-tailed).

Table 4 shows the association between patients' experience of pain intensity with selected variables. The type of surgery is significantly associated with experiences of pain intensity ($p < 0.01$) where as other variables such as sex, education, type of anesthesia and history of previous surgery are not associated with the experience of pain intensity.

Table 4: Association between Patients' Experience of Pain Intensity and Selected Variables

n = 163

| Variables | Pain Intensity Scale | | | χ^2 value | p value |
|------------------|----------------------|------------------|----------------|----------------|---------|
| | Mild No. (%) | Moderate No. (%) | Severe No. (%) | | |
| Sex | | | | 2.091 | 0.352 |
| Male | 31(43.7%) | 31(43.7%) | 9 (12.7%) | | |
| Female | 30 32.6%) | 48 (52.2%) | 14915.2%) | | |
| Education | | | | 3.436 | 0.179 |
| Illiterate | 14(29.8%) | 23 (48.9%) | 10 (21.3%) | | |



| Variables | Pain Intensity Scale | | | χ^2 value | p value |
|------------------------------------|----------------------|------------------|----------------|----------------|--------------|
| | Mild No. (%) | Moderate No. (%) | Severe No. (%) | | |
| Literate | 47 (40.5%) | 56 (48.3%) | 13 (11.2%) | | |
| Types of surgery | | | | 7.891 | 0.019 |
| Gastrointestinal | 43 (35.2%) | 66 (54.1%) | 13 (10.7%) | | |
| Urological & others | 18 (43.9%) | 13 (31.7%) | 10 (24.4%) | | |
| Type of anesthesia | | | | 3.275 | 0.194 |
| General | 22 (30.6%) | 37 (51.4%) | 13 (18.1%) | | |
| Spinal | 39 (42.9%) | 42 (46.2%) | 10 (11.0%) | | |
| History of previous surgery | | | | 2.692 | 0.260 |
| Yes | 11 (42.3%) | 14 (53.8%) | 1 (3.8%) | | |
| No | 50 (36.5%) | 65 (47.4%) | 22 (16.1%) | | |

Table 5 depicts patients' level of satisfaction with post-operative pain management. More than half (67.3%) of patients were very satisfied, whereas 2.9% mild satisfied with post-operative pain management. For further analysis, mild satisfied and moderate satisfied groups merged into mild to moderate satisfied.

Table 5: Patients' Level of Satisfaction with Post-operative Pain Management

(n = 171)

| Level of Satisfaction | Frequency | Percentage |
|-----------------------|-----------|------------|
| Mild satisfied | 5 | 2.9 |
| Moderate satisfied | 51 | 29.8 |
| Very satisfied | 115 | 67.3 |

Satisfaction score: 0-10, Mild satisfied: 1-3, Moderate satisfied: 4-6, Very satisfied: 7-10

Table 6 depicts the association between patients' level of satisfaction and selected variables. Those patients who had undergone gastrointestinal surgery were fully satisfied with the management of their pain compared to urological and other surgery (p=0.033) whereas others variables such as sex, education, preoperative information and health care providers' concern regarding pain are not associated with pain management.

Table 6: Association between patients' Level of Satisfaction and Selected Variables

n = 171

| Variables | Level of Satisfaction | | χ^2 value | p value |
|--|----------------------------|-----------------|----------------|--------------|
| | Mild to moderate Satisfied | Fully Satisfied | | |
| Sex | | | 0.540 | 0.463 |
| Male | 22 (29.7%) | 52 (70.3%) | | |
| Female | 34 (35.1%) | 63 (64.9%) | | |
| Education | | | 0.972 | 0.324 |
| Illiterate | 13 (27.1%) | 35 (72.9%) | | |
| Literate | 43 (35.0%) | 80 (65.0%) | | |
| Preoperative information | | | 2.284 | 0.131 |
| Yes | 19 (26.4%) | 53 (73.6%) | | |
| No | 37 (37.4%) | 62 (62.6%) | | |
| Types of operation | | | 4.524 | 0.033 |
| Gastrointestinal | 37 (28.5%) | 93 (71.5%) | | |
| Urological & others | 19 (46.3%) | 22 (53.7%) | | |
| Health care providers' concern about pain | | | 3.163 | 0.075 |
| Never | 8 (53.3%) | 7 (46.7%) | | |
| Frequently | 48 (30.8%) | 108 (69.2%) | | |





Discussion

Post-operative pain was common among almost all patients who had undergone surgery and majority of them were satisfied with the overall post-operative pain management irrespective of their pain intensity. Type of surgery was associated with the experience of pain intensity and patients' satisfaction towards pain management. Moreover, significant positive correlation found between the pain intensity score and interference of physical activities in the first 24 hours after surgery.

Our study finding indicated that almost all patients (95.4%) reported experience of postoperative pain during the first 24 hour after surgery. This finding is almost consistent with the findings of the studies conducted in India (Subramanian et al., 2017), Ethiopia (Woldehaimanot, Eshetie, & Kerie, 2014) and Nepal (Shrestha, 2014), where 88.4% of patients, 91.4% of patients and cent- percent of patients reported postoperative pain respectively. These findings indicated that pain is common among patients after surgery.

On severity of pain intensity, nearly half (46.2%) of the patients reported moderate pain, and few (13.5%) patients reported severe pain during the first 24 hours after surgery. However, findings of the study conducted by Shrestha (2014) in Nepal revealed severe pain among nearly half of the patients (48%) and moderate pain among 21% patients on 1st postoperative day. Similarly, another study reported hard pain among nearly one third (28.0%) of the patients during the day of the operation and more than one third (39.3%) during the first postoperative night (Niemi-Murola, Poyhia, Onkinen, Rhen, Mäkela, & Niemi, 2007). The percentage of patients who experienced severe pain after surgery is lower in our study compared to other which might be the provision of routine analgesic to all patients through intravenous route followed by oral during post-operative period. Moreover, the difference in findings might be the use of only subjective pain measurement scale in the study.

Overall, 59.7% of patients experienced moderate to severe pain intensity during first 24 hours after surgery. This finding is similar with the finding of the study conducted in Malaysia and Lebanon in which majority of patients reported moderate to high level of pain intensity (Subramanian, Ramasamy, Ng, Chinna, & Rosli, 2016; Ramia, Nasser, Salameh, & Saad, 2017).

Our study found that moderate to severe level of post-operative pain interfere the activities of patients in the bed and outside the bed as well as

falling asleep. Consistent to this findings, a study in Malaysia found moderate to high rates of pain related interference with care activities (Subramanian et al., 2016) and study in Lebanon revealed moderate pain related interference with the activities in bed such as turning and repositioning (44.6%) and activities out of bed such as walking or sitting in a chair or standing (46.9%) (Ramia, Nasser, Salameh, & Saad, 2017). Similarly, the study conducted in India revealed patients experienced pain when performing activities in bed (mean pain score of 3.2 ± 2.1) and out of bed (mean pain score of 4.5 ± 2.5) during the first 24 h after surgery (Subramanian et al., 2017).

Present study found the significant association between pain intensity score and type of surgery where patients who had undergone gastrointestinal surgery experienced less severe pain than the patients undergone other surgery. However, none of the study observed the association between pain intensity and type of surgery. Moreover, our study revealed that pain intensity score was not significantly associated with other variables such as sex, education, type of anesthesia and history of previous surgery. Similar finding is also reported in the study conducted in Turkey which observed that there was no statistically significant relationship between mean pain severity score with age, sex, and education level (Fatma & Serife, 2017). However, other studies found that pain severity scores was significantly associated with previous history of surgery (Fatma & Serife, 2017), race, education level, previous operation status (Subramanian et al., 2016), education and preoperative information (Woldehaimanot, Eshetie, & Kerie, 2014). This might be the difference in setting and sample size.

In this study, significant positive correlation was found between the pain intensity score and interference of physical activities in the first 24 hours after surgery such as doing activities in bed ($r = 0.289$ & $p < 0.01$) and out of bed ($r = 0.282$ & $p < 0.01$), falling asleep ($r = 0.289$ & $p < 0.01$) and anxious feeling ($r = 0.208$ & $p < 0.01$). Similarly, the study of Ethiopia revealed strong correlation between pain intensity and pain interference on functional status ($r = 0.86$; $p < 0.001$) (Woldehaimanot, Eshetie, & Kerie, 2014). However, McNeill, Sherwood, Starck and Thompson (1998) reported no significant differences on pain-related interference with various activities including mood, relationships, sleep, etc.

Out study revealed that almost all patients were moderate to very satisfied (very-67.3%, moderate-



29.8%) with the management of their post-operative pain. This finding is consistent with the other studies (Jawaid, Muhammad, Shafiq, & Malik, 2009; Svensson, Sjöström, & Haljamäe, 2012; Niemi-Murola et al., 2007) where most of the patients were satisfied with the post-operative pain management.

Moreover, this study revealed the significant association between the type of surgery and satisfaction towards post-operative pain management which indicates that more patients who had undergone gastrointestinal surgery were fully satisfied towards pain management compared to patients who had undergone other surgery which might be due to experience of less severe pain intensity. However, sex, education status, response of health care provider about pain, and preoperative information received and pain intensity score were not associated with satisfaction towards pain management. In contrast to this, study found the significant correlation between satisfactions toward pain management and pre-operative information received (Niemi-Murola et al., 2007), sex (Svensson, Sjöström, & Haljamäe, 2012) and pain interference with functional status (Woldehaimanot, Eshetie, & Kerie, 2014).

Joint Commission on Accreditation of healthcare Organizations Pain Standards for 2001 addresses the patient's right to appropriate assessment and management of pain. Moreover, emphasis is also given for the education of all patients and families when appropriate regarding their roles in managing pain as well as limitation and side effects of pain treatment. In our study, only 42.1 % of patients received preoperative information regarding pain management and this finding is almost similar with the finding of the study conducted by Shrestha (2014) in Nepal where only 38.0% of the respondents received preoperative teaching regarding post-operative pain. However, a study conducted in Ethiopia reported that patients had not received any pain management education (Woldehaimanot, Eshetie, & Kerie, 2014) whereas a study conducted in Turkey reported that 77.7% of patients reported that they were told before surgery how postoperative pain could be relieved (Fatma & Serife, 2017). Moreover, our study finding revealed that there is no difference on satisfaction regarding post-operative pain management between patients

who received pre-operative teaching regarding post-operative pain and patients who did not receive pre-operative teaching.

This study found that there is no significant association between level of satisfaction towards post-operative pain management and health care providers' concern regarding pain. In contrast to this, Jamison et al. (1997) revealed that the patients who perceived that the health care professional showed concern to their pain were feeling greatest satisfaction with their care.

Our study showed that there was no relationship between pain intensity score and patients' satisfaction with overall pain management. This finding is consistent with the study conducted by Phillips, Gift, Gelot, Duong, and Tapp (2013) which found no relationship between pain intensity score and patient satisfaction with overall pain management. However, Mitsiou (2013) revealed that the patients who were dissatisfied with the management of their pain generally suffered from high levels of pain. These discrepancies in findings might be due to known multifactorial influences related to setting of facility, patient's expectations, professionals' attitude and knowledge on pain experience which have not been explored in this study.

1. Conclusion

Despite the patient experience of moderate to severe pain during the first 24 hours after surgery, majority of patients are very satisfied with the overall pain management by health care person. Patients who experience high pain intensity experience higher interference in their daily physical activities and anxious feeling. Hence, additional efforts are required to reduce post-operative pain which will ultimately increase the patients' physical and emotional conditions.

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