J Biochem Tech (2018) Special Issue (2): 149-153
ISSN: 0974-2328

Comparing the relationship between Pain and Anxiety Among Addict and Non-Addict orthopedic patients

Reza Saidi, Haydeh Heidari*, and Behrouz Safdarian

Received: 17 Junuary 2018 / Received in revised form: 12 July 2018, Accepted: 16 July 2018, Published online: 05 September 2018

Abstract

Background and Aims: the most common compliant of post-operative orthopedic patients are pain and anxiety. But these compliant may be different in addict and non-addict patients. This study was conducted aiming at comparing the relationship between pain and state anxiety among addict and non-addict patients after lower limb orthopedic surgery .Method: this is a cross-sectional study conducted on 96 post-operative orthopedic patients. Study variables including pain and anxiety was measured with visual analogue scale for pain (pain-VAS) and state section of Spielberger state-trait anxiety inventory, 24 hour after patient's surgery. Data were analyzed whit SPSS software using descriptive and analytical statistics (mean scores, chi-square, independent samples T test and Pearson correlation). Results: There were no significant difference between addict and non-addict patients in terms of mean score of pain and anxiety. Pearson coefficient for relationship between pain and anxiety for total sample, addict group and non-addict group was 0.538, 0.541 and 0.504 respectively, and P value for all was 0.000. Conclusion: results of our study showed a significant relationship between pain and anxiety among post-operative orthopedic patients, and this relationship was stronger in addict patients. Thus, pain and anxiety of these patients should be evaluated and treated properly for improving patient's outcome and quality of cares.

Keywords: pain, anxieity, orthopedic surgery

Introduction

Every year millions of people in the world undergo surgery.one of the most common problems that postoperative patients report, is pain. In the early postoperative period, pain and anxiety are very common. It is expressed that 30 percent of postoperative patients report mild pain, 30 percent of them report moderate pain and 40 percent report severe pain (Borzu, torkaman & falegari, (2002; Ebneshahidi & Mohseni, 2008). Based on clinical definition "pain is whatever the experiencing person says and exists whenever the experiencing person says" (Schultz & Videbeck, 2009). One of the most painful surgeries is orthopedic surgery. Post-operative orthopedic pain is mainly due to the nature of the procedures, which includes repair and reconstruction of major Musculoskeletal tissues (Pasero & McCaffery 2007).

Pain is a multifactorial and personal experience and it affects immune function, wound healing and cardiopulmonary system negatively (Ip & et al, 2009). Postoperative pain can interfere with patient's rest and sleep and lengthen hospitalization (Allred, Byers & Sole, 20106). Pain can also affect the ability of patients to cough, deep breathing, and performing self-care activities (Mitchinson & et al, 2007). Acute post-operative pain is also a risk factor for developing chronic pain (Naderi Nabi & et al, 2015; Raichle & et al, 2015). Given the fact that post-operative pain is the most reported compliant, and this pain has various negative effects on patient outcomes, identification of predictive and related factors to post-operative pain is important for better pain management (Ip & et al, 2009).

It is argued that perception of pain is different from one person to another. This difference in perception of pain is related to various psychological and sociocultural factors that affect the person at the time of pain experience. Among these factor, anxiety is considered as the most effective factor on pain perception (Bruegel, 1971).

Anxiety is unpleasant emotional experience and can be defined as feeling of tension, apprehension, nervousness, fear and high autonomic activity (Akinsulore & et al, 2015). Undergoing every type of surgery cause release of catechol-amines which in turn can cause psychological responses such as anxiety. Post-operative patients experience anxiety for a variety of reasons such as fear of lack of recovery and Continuing Symptoms despite of treatments performed (Kamrani & et al, 2016). In various studies prevalence of post-operative anxiety has reported to be 11 to 80 percent (Erci, Sezgin & Kaçmaz, 2008).

Reza Saidi
Msc student of Medical Surgical Nursing, faculty of Nursing and Midwifery, Shahrekord University of Medical Sciences, Shahrekord, Iran.

Haydeh Heidari*
Assistant Professor, Faculty of Nursing and Midwifery, Modeling in Health Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran.

Behrouz Safdarian
Orthopedic specialist, medical School, Shahrekord University of Medical Sciences, Shahrekord, Iran.

***E-mail:** haydehheidari@gmail.com

Anxiety is a factor that is commonly neglected among hospitalized patients (Closs, Briggs & Everitt, 1997). But Post-operative anxiety can cause increase in secretion of hormones, cardiac arrhythmias, malnutrition, increased risk of infection, increased blood pressure, delayed bone healing, and even decreased quality of life (Bailey, 2010). Higher post-operative anxiety can cause longer hospital stay and more severe pain. Due to negative effect of anxiety on post-operative recovery and patient's physical well-being, and given the fact that Anxiety is a quality indicator for post-operative cares, it is important to identify variables related to post-operative anxiety in order to offer sufficient care and services for patients (Erci, Sezgin & Kaçmaz, 2008; Caumo & et al, 2001).

One group of hospitalized patients are addicted patients. Addicted patients may be considered as culpable by the society or the legislators. This can make nurses and physicians to have negative attitudes toward observing the rights of addicted patients and do not assess their post-operative pain and anxiety correctly (Koohestani, Baghcheghi & Rezaei, 2014). Thus, assessing pain and anxiety and their relationship among addicted patients has special importance.

Based on our search in scientific databases, there are some studies that have evaluated the relationship between pre and post-operative pain and anxiety (Closs, Briggs & Everitt, 1997; Chapman & Cox, 1977; Martinez-Urrutia, 1975; Oberle & et al, 1990; Raichle & et al, 2015; Scott, Clum & Peoples, 1983). not all of them conducted on orthopedic patient. Furthermore we didn't find any study comparing relationship between pain and anxiety between addict and non-addict patient, thus this study was conducted with the aim of Comparing the relationship between pain and state anxiety among addict and non-addict patients after lower limb orthopedic surgery.

Methods

This is a cross-sectional study that conducted in orthopedic ward of ayatollah Kashani hospital, Shahrekord, Iran. 96 male post-operative patients who were undergone lower limb orthopedic surgery participated in this study, which 48 of them were addict and 48 of them were non-addict. Inclusion criteria were: age over 15 years old, orientation to time, place and person, lack of any underlying disease that can cause pain or anxiety and being able to read and speak Persian. This study was approved by ethics committee of Shahrekord University of medical sciences. An informed consent obtained from each patient before participating in the study.

Data were collected using demographic questionnaire, visual analogue scale for pain (pain VAS), and state section of Spielberger state-trait anxiety inventory (STAI), 24 hours after patient's surgery.

The visual analogue scale (VAS) is frequently used for measuring postoperative pain. It's simplicity, reliability, and validity, as well as it's ratio scale properties, make the VAS the optimal tool for describing pain severity or intensity (Bodian & et al, 2001). The Visual Analogue Scale (VAS) consists of a 10 cm straight line with the endpoints defining extreme limits such as 'no pain at all' and 'pain as bad as it could be'. The patient is asked to mark his pain level on the line between the two endpoints. The distance between 'no pain at all' and the mark then defines the subject's pain (Haefeli & Elfering, 2006).

Spielberger's state trait anxiety inventory is one of the most popular scales for evaluating anxiety. This questionnaire is composed of two section with 20 questions, one section evaluates state anxiety (the anxiety that the person experience at the moment) and another section evaluates trait anxiety (the anxiety which develops over time). State anxiety questionnaire includes 20 questions which are answered on the basis of a 1-4 scale and responses assess intensity of current feelings "at this moment": 1) not at all, 2) somewhat, 3) moderately so, and 4) very much so. Range of scores for state anxiety subset is 20–80, the higher score indicating greater anxiety. Point 20-39 indicates mild, 40-59 indicates moderate, and 60-79 indicates severe and 80 indicates very severe anxiety. Spielberger's state-trait anxiety has good Reliability and validity and it's cronbach's alpha have been reported between 0/92 to 0/96 in various studies (Barnes, Harp & Jung, 2002; Rukholm & et al, 1991). In Iranian studies Reliability coefficient for this questionnaire have been reported between 0/85 to 0/93 (Bastani, Ali Abadi & Haghani, 2012; Roohy & et al, 2005; Adib-Hajbaghery & et al, 2012).

Data were analyzed with SPSS software (version 16) using Descriptive and analytical statistics (mean scores, Pearson correlation coefficient, independent samples T test and chi square).

Results

The minimum age of participants was 15 and the maximum age 60 years. The mean age of total sample was 36.24±12.93, the mean age of addict patients was 36.35±13.509 and the mean age of non-addict patient was 36.12±12.48. Independent T test did not show significant difference between addict and non-addict groups in the terms of mean scores of age (P=0.66). In the terms of type of surgery, 10 patients were undergo hip surgery, 34 patients were undergo femor surgery, 10 patients were undergo knee surgery, 33 patients were undergo tibia or fibula surgery and 9 patients were undergo Metatarsal bones surgery. Chi square test did not show significant difference between two study groups in terms of type of surgery (P=0.159).

Mean score of pain intensity in total sample was 7.41±0.98, in addict group was 7.60±0.96 and in non-addict group was 7.21±0.96. Based on independent samples T test, mean score of pain intensity had not significant statistical difference between the two study groups (P=0.35). Mean score of state anxiety for total sample, addict group and non-addict group was 53.14±6.5, 54.27±6.26, and 52.02±6.76 respectively. Based on results of independent samples T test, the mean score of anxiety had not significant statistical difference between the two study groups (P=0.72).

Pearson coefficient for relationship between pain and anxiety for total sample, addict group and non-addict group was 0.538, 0.541 and 0.504 respectively, and P value for all was 0.000. These results show that pain and anxiety are more correlated in addict patients than non-addict patients.

Table 1- mean score of pain and anxiety in addict and non-addict patients (mean± standard deviation)

	Addict group (n=48)	Non-addict group	Total	P-value (independent T test)
Pain	7.6±0.96	7.2±0.967	7.41±96	0.35
Anxiety	54.27±6.26	52.02±6.76	53.14±14	0.72

Table 2- Pearson coefficient for relationship between pain and anxiety in addict and non-addict patients

	Addict group	Non-addict group	Total
Pearson coefficient	0.541	0.504	0.538
P-value	0.000	0.000	0.000

Discussion

This was a cross-sectional study conducted on 96 post-operative patients undergone lower limb orthopedic surgery aiming at comparison of relationship between pain and anxiety between addict and non-addict patients. The results of this study showed that pain and anxiety are correlated to each other both in addict and non-addict patients, and this correlation was stronger in addict patients. Thus pain can cause more anxiety in addict patients than non-addict patients, or anxiety can cause more severe pain in addict patients.

Mean score of pain intensity in this study was 7.41±96, 7.6±0.96 and 7.2±0.967 in total sample, addict group and non-addict group, which represents that patients undergoing lower limb orthopedic surgery experience moderate pain (based on VAS scoring) in the first post-operative day. In this regard, in the study of miller et al (Miller & et al, 2015) the mean score of pain intensity of post-operative lower limb orthopedic patients was 6.9±1.7 in control group and 6.4±1.5 in intervention group. In the study of Imani and colleagues (Imani & et al, 2015) the mean score of pain intensity of post-operative orthopedic patients was 6.5±1.4 in intervention group and 6.8±1.6 in control group. The results of these two study represents that post-operative orthopedic experience moderate levels of pain, which is consistent with our results.

In our study mean score of anxiety in total sample was 53.14±6.58, in non-addict group was 52.02±6.76 and in addict group was 54.27±6.26, which represents that the study participants had moderate anxiety level. In this regard, in study of buyukilmaz et al (Büyükyılmaz & Aştı, 2013) the mean score of state anxiety of post-operative orthopedic patients was 54.73±6.75, which is consistent with our results. In a study conducted by kamrani et al (Kamrani & et al, 2016) the mean score of anxiety of post-operative orthopedic patients was 9.15±0.96 (in a scale of 0-10). The results of this study shows that post-operative orthopedic patient may experience sever anxiety, and is inconsistent with our results.

In our study there was a significant correlation between pain and anxiety both in addict and non- addict patients. In this regard, closs et al (Closs, Briggs & Everitt, 1997) reported a direct relationship between night-time pain and anxiety in post-operative orthopedic patients, which is consistent with our results. Carr and colleagues (Carr , Thomas & Wilson-Barnet, 2005) also reported that, in the anxiety of post-operative patients increased as their pain score increased.

The result of our study and some other studies represent that there is a significant relationship between post-operative pain and anxiety. But in some studies (Closs, Briggs & Everitt, 1997; Carr , Thomas & Wilson-Barnet, 2005) it is argued that this relationship can not explain whether anxiety makes pain worse or experiencing pain cause anxiety. Thus, it is important that, both pain and anxiety of post-operative orthopedic patients be evaluated, diagnosed and treated properly.

Nurses play an important role in caring of patients. They are unlikely to reduce trait anxiety, but they can decrease state situational anxiety of post-operative patients. So, it is suggested that future studies examine different types of nursing intervention such as giving information to patients about pain and anxiety and their cause, using complementary and alternative medicine methods such as music therapy, massage therapy, medical herbs and other caring models and methods.

In our study, the Pearson coefficient for relationship between pain and anxiety was greater in addict patients than non-addict patients. We found no study comparing characteristics and relationship between pain and anxiety in addict and non-addict post-operative patients, thus it is suggested that future studies consider this as an important subject for research.

Conclusion

Based our results, There was a significant relationship between pain and anxiety in post-operative lower limb orthopedic patients and this relationship was stronger in addict patients. These results should be considered when caring of post-operative patients. It is recommended that pain and anxiety of post-operative patients, especially addict patient be evaluated and treated precisely for improving patients' outcome.

Acknowledgements

Researchers are thankful to participants in this study. This article is a part of a thesis for master-of-science degree in medical surgical nursing which was approved and funded by ShahreKord University of Medical Sciences.

References

Adib-Hajbaghery, M., Rajabi-Beheshtabad, R., Abasi, A., & Azizi-Fini, E. (2012). The Effect of Massage Therapy by a Nurse and the Patient's Companion on the Anxiety of Male Patients Hospitalized in CCU: A Clinical Trial. *Iran Journal of Nursing (2008-5923)*, *25*(78).

Akinsulore, A. D. E. S. A. N. M. I., Owojuyigbe, A. M., Faponle, A. F., & Fatoye, F. O. (2015). Assessment of preoperative and postoperative anxiety among elective major surgery patients in a tertiary hospital in Nigeria. *Middle East J Anaesthesiol*, *23*(2), 235-40.

Allred, K. D., Byers, J. F., & Sole, M. L. (2010). The effect of music on postoperative pain and anxiety. *Pain Management Nursing*, *11*(1), 15-25.

Bailey, L. (2010). Strategies for decreasing patient anxiety in the perioperative setting. *AORN journal*, *92*(4), 445-460.

Barnes, L. L., Harp, D., & Jung, W. S. (2002). Reliability generalization of scores on the Spielberger state-trait anxiety inventory. *Educational and psychological measurement*, *62*(4), 603-618..

Bastani, F., Ali Abadi, T., & Haghani, H. (2012). The effectiveness of participatory care program in neonatal intensive care unit on state anxiety of mothers of preterm newborns. *Journal Of Babol University Of Medical Sciences*, *14*(3), 59-65.28.

Bodian, C. A., Freedman, G., Hossain, S., Eisenkraft, J. B., & Beilin, Y. (2001). The visual analog scale for painClinical significance in postoperative patients. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, *95*(6), 1356-1361.

Borzu, R., torkaman, B., & falegari, G. (2002). Effect of rhytmic respiration on pain intensity in post-surgury orthopedic patients. *Journal of kordetan university of medical sciences*, *3*(23):6-11.

Bruegel, M. A. (1971). Relationship of preoperative anxiety to perception of postoperative pain. *Nursing Research*, *20*(1), 26-31.

Büyükyılmaz, F., & Aştı, T. (2013). The effect of relaxation techniques and back massage on pain and anxiety in Turkish total hip or knee arthroplasty patients. *Pain Management Nursing*, *14*(3), 143-154.

Carr, E. C., Thomas, V. N., & Wilson-Barnet, J. (2005). Patient experiences of anxiety, depression and acute pain after surgery: a longitudinal perspective. *International Journal of Nursing Studies*, *42*(5), 521-530.

Caumo, W., Schmidt, A. P., Schneider, C. N., Bergmann, J., Iwamoto, C. W., Adamatti, L. C., ... & Ferreira, M. B. C. (2001). Risk factors for postoperative anxiety in adults. *Anaesthesia*, *56*(8), 720-728.

Chapman, C. R., & Cox, G. B. (1977). Anxiety, pain, and depression surrounding elective surgery: a multivariate comparison of abdominal surgery patients with kidney donors and recipients. *Journal of Psychosomatic Research*, *21*(1), 7-15.

Closs, J., Briggs, M., & Everitt, V. (1997). Night-time pain, sleep and anxiety in postoperative orthopaedic patients. *Journal of Orthopaedic Nursing*, *1*(2), 59-66.

Ebneshahidi, A., & Mohseni, M. (2008). The effect of patient-selected music on early postoperative pain, anxiety, and hemodynamic profile in cesarean section surgery. *The journal of alternative and complementary medicine*, *14*(7), 827-831.

Erci, B., Sezgin, S., & Kaçmaz, Z. (2008). The impact of therapeutic relationship on preoperative and postoperative patient anxiety. *Australian Journal of Advanced Nursing, The*, *26*(1), 59.

Haefeli, M., & Elfering, A. (2006). Pain assessment. *European Spine Journal*, *15*(1), S17-S24.

Imani, F., Rahimzadeh, P., Faiz, S. H. R., Sayarifard, A., Alebouyeh, M. R., & Entezary, S. R. (2015). Comparison between the effect of 0.2% and 0.3% Bupivacaine in fascia iliac block on postoperative pain in patients with femoral or hip fracture. *Anesthesiology and Pain*, *5*(4), 59-68.

Ip, H. Y. V., Abrishami, A., Peng, P. W., Wong, J., & Chung, F. (2009). Predictors of Postoperative Pain and Analgesic ConsumptionA Qualitative Systematic Review. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, *111*(3), 657-677.

Kamrani, F., Nazari, M., Sahebalzamani, M., Amin, G., & Farajzadeh, M. (2016). Effect Of Aromatherapy With Lemon Essential Oil On Anxiety After Orthopedic Surgery.

Koohestani, H. R., Baghcheghi, N., & Rezaei, K. (2014). Comparison of satisfaction with post-operative pain management and level of functional interferance in addicted and non-addicted patients. *Journal of Holistic Nursing And Midwifery*, *24*(3), 48-55..

Martinez-Urrutia, A. (1975). Anxiety and pain in surgical patients. *Journal of Consulting and Clinical Psychology*, *43*(4), 437..

Miller, J., Dunion, A., Dunn, N., Fitzmaurice, C., Gamboa, M., Myers, S., ... & Sandberg, R. (2015). Effect of a brief massage on pain, anxiety, and satisfaction with pain management in postoperative orthopaedic patients. *Orthopaedic Nursing*, *34*(4), 227-234.

Mitchinson, A. R., Kim, H. M., Rosenberg, J. M., Geisser, M., Kirsh, M., Cikrit, D., & Hinshaw, D. B. (2007). Acute postoperative pain management using massage as an adjuvant therapy: a randomized trial. *Archives of surgery*, *142*(12), 1158-1167.

Naderi Nabi, B., Sedighinejad, A., Haghighi, M., Sedigh Karami, M., Fathi, A., & Pourreza, M. (2015). Evaluating the effect of single dose oral pregabalin on acute pain control after orthopaedic surgery. *Anesthesiology and Pain*, *4*(3), 62-68..

Oberle, K., Wry, J., Paul, P., Grace, M., Smith, R. A. P., & Shaver, J. F. (1990). Environment, anxiety, and postoperative pain. *Western Journal of Nursing Research*, *12*(6), 745-757.

Pasero, C., & McCaffery, M. (2007). Orthopaedic postoperative pain management. *Journal of PeriAnesthesia Nursing*, *22*(3), 160-174.

Raichle, K. A., Osborne, T. L., Jensen, M. P., Ehde, D. M., Smith, D. G., & Robinson, L. R. (2015). Preoperative state anxiety, acute postoperative pain, and analgesic use in persons undergoing lower limb amputation. *The Clinical journal of pain*, *31*(8), 699-706.

Raichle, K. A., Osborne, T. L., Jensen, M. P., Ehde, D. M., Smith, D. G., & Robinson, L. R. (2015). Preoperative state anxiety,

acute postoperative pain, and analgesic use in persons undergoing lower limb amputation. *The Clinical journal of pain*, *31*(8), 699-706.

Roohy, G. R., Rahmany, A., Abdollahy, A. A., & GhR, M. (2005). The effect of music on anxiety level of patients and some of physiological responses before abdominal surgery. *Journal of Gorgan university of medical sciences*, *7*(1), 75-78.29.

Rukholm, E., Bailey, P., Coutu-Wakulczyk, G., & Bailey, W. B. (1991). Needs and anxiety levels in relatives of intensive care unit patients. *Journal of Advanced Nursing*, *16*(8), 920-928.

Schultz, J. M., & Videbeck, S. L. (2009). *Lippincott's manual of psychiatric nursing care plans*. Lippincott Williams & Wilkins.

Scott, L. E., Clum, G. A., & Peoples, J. B. (1983). Preoperative predictors of postoperative pain. *Pain*, *15*(1-4), 283-293.