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Original Research Article

Is Effective Post-Operative Pain Relief Possible Without Appropriate Pain Assessment and Its Documentation?

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Abstract

Pain assessment is a significant issue in post-operative patients. Surgical ward nurses are responsible to assess and document patient's pain postoperatively and provide pain medications as per the guidance of physicians. Ward nurses usually underestimate patient's pain which may delay pain relief and post-operative recovery of surgical patients. Main purpose of this study was to observe the practice of pain assessment and its documentation by nurses in surgical ward of tertiary care hospital. In this study, all adult patients after general surgery, gynecology and orthopedic surgery were included. Patient's medical records were reviewed to see documentation of static and dynamic pain scores, any rescue analgesia provided and associated complications for first 24 hours postoperatively and recorded in specific data collection form. Total 260 patients were included in this study in which 35.8% were male and 64.2% were female. For post-operative pain relief, PCA (Patient controlled analgesia) was used in 63% of patients and epidural analgesia in 37 % of the patients. As per documentation, 15 patients (5.8%) had moderate pain at rest (static pain) on arrival in surgical ward and 77 patients (29.6%) had moderate pain on movement (dynamic pain) however only seven patients received rescue analgesia on arrival in surgical ward. Post-operative pain assessment and documentation was found appropriate in this study, but significant gaps were observed in postoperative pain relief by surgical ward nurses during first 24 hours.

Keywords: Postoperative pain assessment, documentation, pain relief and surgical ward nurses.

INTRODUCTION

Inadequate pain relief is a frequent problem in post-operative patients. Joint Commission's Pain standards and American Pain Society (APS) Walid *et al*., (2008) recommended "Pain" as a fifth vital sign. 75% of the post surgical patients reports moderate to severe post-operative pain (Gan *et al*., 2014). Recent literature shows that inadequate pain relief is associated with increased morbidity, functional and quality-of-life impairment, delayed recovery time, and higher health-care costs (Gan, T. J., 2017). It is evident that nurses in the busy surgical wards tend to underestimate the severity of patient's pain resulting in inadequate pain relief. Regular and proper pain assessment and its documentation has been considered the essential factor for adequate pain relief (Sloman *et al*., 2005).

It has also been reported that patients and nurses often accept pain as a normal component of the surgery and postoperative experience (Dihle *et al*., 2006). Vitals signs are usually considered as an indicator to evaluate the pain severity and if they are in normal range, then nurses perceive that patient is not experiencing pain (Samarkandi, O. A., 2018). Most of the surgical ward nurses (93.8%) had poor awareness regarding pain assessment and its relief. It has been strongly recommended that nurses need in-service training programs and refreshing courses to improve their knowledge to reflect on their practices while working with surgical patients (Sayed, *et al*., 2019). Nurses play a vital role in assessing and managing patients' pain therefore they should have proper knowledge of pain and should not hold false beliefs regarding post-operative pain (Eaton *et al*., 2015).

Inadequate pain relief has been commonly reported due to under estimation of pain by ward nurses, lack of adequate knowledge about pain assessment and non-compliance of pain management policies and protocols. In any hospital settings, pain assessment by nurses and its correct documentation are considered the essential component of health care. Sub-optimally managed post-operative pain can lead to a delayed recovery, risk of long-term chronic pain and a reduction in patients' quality of life. Patient's' self-reporting of their pain should remain a fundamental component of the nurse's assessment because pain is an individual and subjective experience. Approaches to reduce the nurse and patient barriers to optimal post-operative pain relief should include patient education and the use of valid pain assessment tools (Coll & Jones, 2020). Targeted education has shown an improvement in nurses' knowledge regarding pain assessment and its relief (Galligan & Wilson, 2020).

The primary objective of this study was to evaluate the practices of pain assessment and its documentation by surgical ward nurses during first 24 hours post-operatively. The secondary objective was to observe the practice of ward nurse for immediate pain relief of surgical patients having moderate to severe pain.

METHODOLOGY

This retrospective observational study was conducted in surgical wards of Aga Khan University hospital, the first JCI (Joint Commission International) accredited institution of Pakistan. As per institutional pain standards, pain assessment in all surgical patients is routinely performed and documented in patient's medical records by ward nurses. Postoperatively pain assessments are done on arrival of patient in surgical ward after surgery, at four hourly intervals, and throughout the course using numerical rating scale (NRS) from 0 to 10, where 0 stands for no pain and 10 stands for worst pain imaginable (Lundeberg *et al*., 2001). If pain score is found more than 3 then ward nurses either follow rescue analgesia orders or call primary surgical team or acute pain management service (APMS) team to relief patient's pain.

After the approval from the Institutional Ethical Review Committee, all adult patients with elective surgical procedures in orthopedic, gynecology and general surgery were included in this study. A sample size of two hundred and sixty patients were randomly selected by using computer generated number from total surgeries done in 3 month of study period. Medical records of included surgical patients were retrieved and the data was collected on a pre-designed proforma. Data includes patient's demographics, primary diagnosis, surgical procedure, comorbid conditions, post-operative analgesic plan, static and dynamic pain scores on numerical rating scale (NRS) and their documentations by ward nurses. Call given to primary surgical team and APMS & its documentation and record of rescue analgesia and associated complications were also recorded.

All statistical analysis was performed using statistical packages for social science version 19 (SPSS Inc., Chicago, IL). Mean and standard deviation were computed for quantitative variables like age, weight, height, and BMI while frequency and percentage were estimated for qualitative variables like gender, ASA status, co-morbid, severity of pain and complication.

RESULTS

Total 2560 adult surgical procedures were done during study period and medical records of two hundred and sixty adult surgical patients were reviewed for data collection of this study. Majority of patients were female (64.2%) with mean age of 50.8±16.3% years, as presented in Table-I. Regarding comorbidities most of the patients were hypertensive followed by Diabetes, obesity, lung, and liver disease.

Table 1: Demographic characteristics and ASA status of patients (n=260)

Variables	**Mean ± SD**	**Min-Max, n (%)**
Age (Years)	51.34 ± 15.82	[18-86]
Weight (kg)	71.58 ± 15.36	[40-115]
Height (cm)	159.92 ± 9.16	[128-182]
BMI (kg/m^2)	27.91 ± 5.72	[18-47]
Gender		
Male /Female	93/167	35.80%/64.20%
ASA-Status		
ASA-I/II/III/IV	26/139/92/3	10%/53.05%/35.04%/1.2%
Results are expressed as *Mean ± SD [Min-Max], n (%)*		

Postoperative pain was managed with multi-modal techniques using continuous epidural in 102 surgical patients while 158 patients were managed by patient controlled intra-venous analgesia using narcotic. Intra-venous paracetamol and NSAID were also given.

Records of routine 4 hourly post-operative pain assessment by nurses using NRS were found in all surgical patients in first 24 hours post-operatively, i.e.,100% compliance towards set surgical pain standards. As per record, on arrival in the ward, 5.8% patients had moderate pain (NRS 4 to 6 /10) at rest

(Static pain) and 77% patients complained moderate pain on movement (Dynamic pain), (Figure 1). Three patients reported severe pain at 12 hours postoperatively.

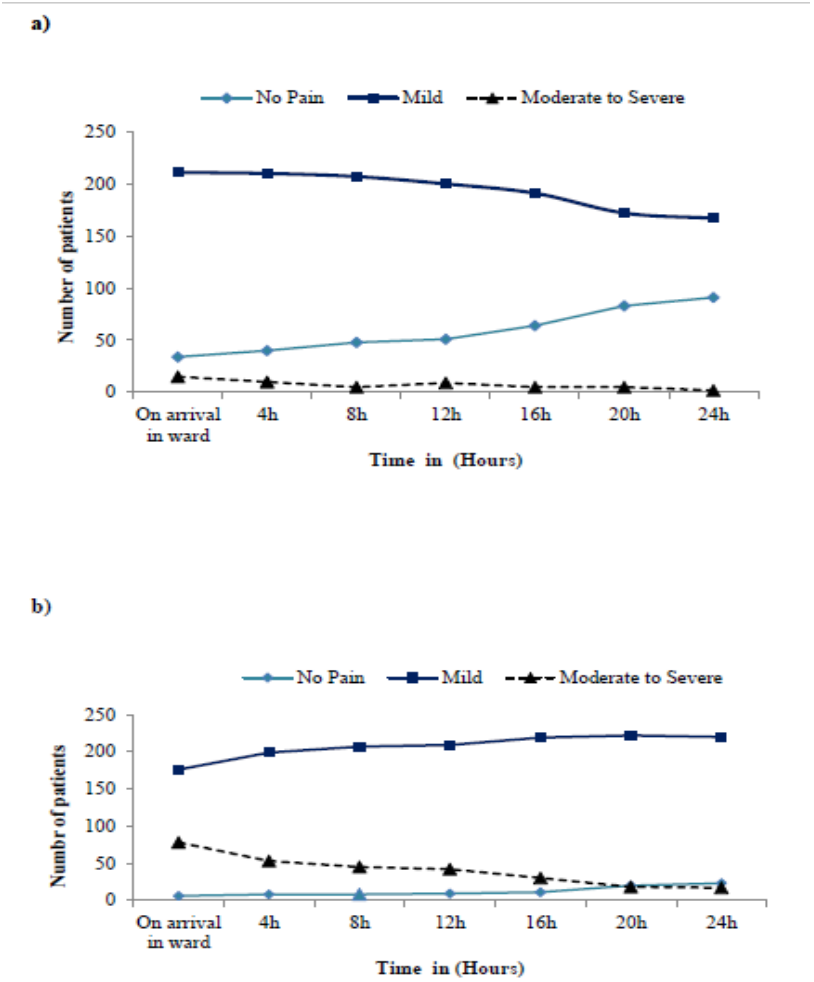

Figure 1: Post-operative static and dynamic pain score documentation, [a]. Static pain documentation, [b]. Dynamic pain documentation

Overall, 9.6% patients had resting pain score ≥ 4 and 41.9% had dynamic pain score ≥ 4 (Figure 2). Out of 109 patients who had pain score ≥ 4, only 17 (15.6%) patients received rescue analgesia while ninety-two (84.4%) patients did not receive rescue analgesia (Figure 3).

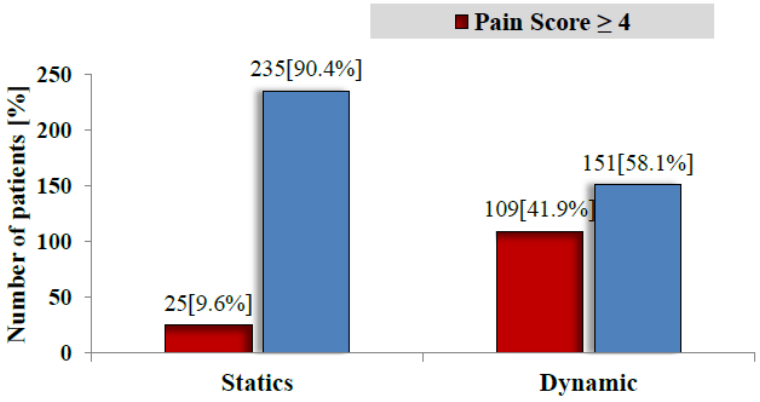

Figure 2: Post-Operative Pain Assessment Statistics (n=260)

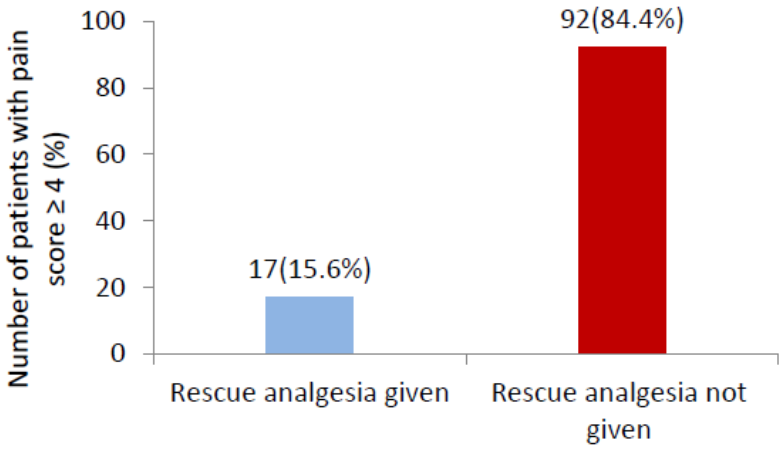

Figure 3: Rescue analgesia for patietns with pain score ≥4 (n=109)

DISCUSSION

Pain assessment plays a key role in the post-operative care of surgical patients for providing adequate pain relief which prevents several complications such as deep vein thrombosis (DVT), pneumonia, infection, and persistent post-operative pain (Meissner *et al*., 2015). The board of registered nursing has recently emphasized on a definite role of nurses in pain assessment for post- operative pain and recommends multimodal analgesia and regular assessment and re-assessment of pain by nurses post-operatively (Chou *et al*., 2016).

This study was conducted in a leading tertiary care hospital of big metropolitan city with heavy surgical workload and established APMS. As per hospital protocol, pain assessment is considered a fifth vital sign and it needs to be done by ward nurse four hourly with the other vital signs and documented in the post-operative period. The nurses are responsible to strictly follow the post-operative orders e.g., rescue analgesia or calling APMS team member if the pain score on NRS is more than 3.

This study found that routine pain assessment was performed and documented in all surgical patients (100% compliance) as per protocol i.e., on arrival in the ward & four hourly for 24 hours. This contrasts with a recent study in which nurses failed to document and report patients pain despite of hospital policy and protocols (Chatchumni *et al*., 2016). Hoogervorst-Schilp *et al*., (2016) have shown non-compliance in postoperative pain assessment by the ward nurses as postoperative pain assessment was done once a day in 53% and three times a day in 12% of patients

Several barriers have been identified for non-compliance of hospital protocols e.g., shortage of nurses, high surgical volumes, and the low set priority towards the post-operative pain relief. Etc. Attention-seeking patients, buzzer obsession for calling nurse and family interference can also disrupt routine 4 hourly pain assessment by ward nurses (Shoqirat, N., 2015). Ozer *et al*., (2006) have also shown inadequate pain assessment and management by the ward nurses. They found that only 35.5% ward nurses used the pain scale for pain assessment.

Wissman *et al*., (2020) designed a quality improvement project to assess the nurse practice of reassessing pain and identified that only 33% pain reassessment and documentation.

A retrospective study regarding the significance of documentation of pain assessment concluded that pain assessment was either not done or may be done but not documented in their study patients. In addition, they found that nurses were not aware of the significance of pain records/ documentation therefore they recommend the need for online pain management courses for the ward nurses and emphasized the need of accurate pain assessment & documentation by ward nurses (Erden *et al*., 2017). Pain assessment has been identified as a problem in the surgical wards of tertiary care hospital. They suggested that health professionals must be empowered to relief pain adequately. An assessment tool that integrates the biopsychosocial factors that influence the pain experience should be routinely employed by a multidisciplinary team to facilitate goal-directed pain management (Prempeh, *et al*., 2020).

In this study, it was found that no attention was given by the ward nurses even if patients report moderate to severe pain (more than 3 NRS pain score) on several study timings. Only 15.6% patients received rescue analgesia while 84.4% patients did not receive any attention despite the documented self-reporting pain score of more than 4. Pain team member was not contacted for assessment and immediate pain relief as per documentation. These findings support the earlier research depicting that nurse usually complete the

documentation of pain assessment as a matter of routine task and not with the primary intention of measuring pain for relieving the patient's suffering (Purser, *et al*., 2014). Allen *et al*., (2018) highlighted the role of Pain Resource Nurse (PRN) in sustaining evidence-based practice changes for pain assessment and management. They suggested that collaboration and support of acute, chronic, and palliative care team members and experiences gain from them were important in maintaining effective communication between pain teams, ward staff, and patient care (Allen *et al*., 2018).

Chatchumni *et al*., (2016) concluded through a cross-sectional explorative study that nurses judge patient's pain by their facial expression rather then considering patient's self-report pain as an important indicator. Current literature has shown that the major factors associated with poor post-operative pain assessment and relief by the ward nurses are language differences, alcohol usage, lack of time, increase level of workload and lack of knowledge (Lourens *et al*., 2019). Inadequate pain relief is thought to be a result of insufficient knowledge and personal beliefs of staff (Ung *et al*., 2016). So, for better post-operative pain management, nurses should be educated in pain assessment, documentation, and its interpretation.

Recent literature recommends following best practice measures in health care regarding assessment and treatment of patients with acute pain like, mandating pain score reporting, pain assessment and reassessment within specific timeframes and analgesia administration within 30 minutes of arrival. Pain management education should be made a priority for all clinical staff. The implementation of nurse led analgesia protocols should be encouraged to improve pain assessment, documentation and reduce time to analgesia. By increasing education, assessment, awareness and implementing supportive protocols improved pain assessment, timely administration and documentation can be achieved (Hatherley *et al*., 2016).

This study showed that surgical ward nurses, assess pain and document it as a routine task like other vitals and showed 100% compliance. However, the lack of understanding in its interpretation led to inadequate pain relief even when patients report moderate to severe pain. Lack of knowledge and experience of ward nurses, poor clinical judgment in believing and legitimizing patient's pain, competency to assess pain and ineffective communication can be the possible factors. We recommend on job teaching and training sessions for nursing staff, on pain assessment, its documentation, interpretation of pain score and timely intervention to improve outcome of patients, especially in post-operative ward.

CONCLUSION

In this study, post-operative pain score assessment (static and dynamic) and documentation by surgical ward nurses were 100%. Certain gaps have been identified regarding post-operative pain relief like rescue analgesia was not provided to patients even with moderate pain in significant number of patients.

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Declaration of competing interest: There is no conflict of interest.

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