ORIGINAL ARTICLE

Postoperative pain management in the surgical wards of a tertiary care hospital in Peshawar

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Abstract

Objective: To assess levels of postoperative pain with reference to internationally validated protocols.

Methods: The hospital-based survey of postoperative patients was conducted from February 2012 to April 2012 in the surgical wards of Rehman Medical Institute, Peshawar. A questionnaire was devised incorporating internationally validated World Health Organisation pain scoring system to assess the level of pain control. The severity of postoperative pain was further evaluated by correlating it with various variables.

Results: Of the 210 patients interviewed, 80(38%) were males with a mean age of 44.16±20.37 and 130(62%) were females with a mean age of 36.47±14.39. Overall, 84(40%) patients experienced mild pain, 82(39%) experienced moderate pain and 33(16%) experienced severe pain, while only 11(5%) experienced no pain when assessed within the first 24 hours following surgery. The same patients when interviewed within the 48 hours following surgery showed 117(56%) were in mild pain, 72(34%) in moderate to severe pain and 21(10%) had no pain.

Conclusion: The achievement of absolute no pain for all patients in the post-operative phase is next to impossible, but it should remain the ultimate target.

Keywords: Postoperative pain, Acute pain, Pain management, Analgesia, Anaesthesia, General surgery, Cardiac surgery. (JPMA 65: 358; 2015)

Introduction

The International Association of Study of Pain has defined pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.[1]

Commission on Provision of Surgical Services (Royal College of Surgeons England, Royal College of Anaesthetists) reported in 1990 that despite advances in pain management, about 75% patients suffer from moderate to severe pain in the postoperative period. Main reason for inadequate pain control was identified as lack of training among medical and nursing staff.[2]

Postoperative pain management starts well before the surgery commences by assessing the patient preoperatively and giving pre-operative analgesia. Adequate pain control measures are taken during surgery and are continued in the early and late postoperative period. As pain is a very subjective feeling, the analgesic and the techniques used for analgesia delivery are customised and tailored for every patient. A study stated that "under-treatment of pain is poor medical practice that results in many adverse effects and is an abrogation of a fundamental human right."[3]

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A study reported that 68.7% patients had moderate to severe pain in the first 24 hours of surgery which reduced to 51.7% in 48 hours.[4] In order to improve pain management after surgery various guidelines and protocols have been generated, and, according to various studies and audits, they have reduced the incidence of postoperative pain.[5] In Pakistan, various studies and audits regarding postoperative pain management have been performed but none from the region of Khyber Pakhtunkhwa (KP).[6-8]

The current study was planned in Peshawar, the KP capital, to evaluate the effectiveness of postoperative pain management; to correlate postoperative pain with various variables; and to compare the existing protocol with international guidelines.

Patients and Methods

The hospital-based survey of postoperative patients was conducted from February 2012 to April 2012 in the surgical wards of Rehman Medical Institute, Peshawar. After approval from the institutional ethics review board, non-random convenience sampling was used for patient selection. All adult postoperative patients of both genders who underwent a surgical procedure performed under general anaesthesia (GA) were included. The patients excluded were either unconscious, patients with diminished chances of survival, with unstable vital signs, unwilling to participate in the study and children below

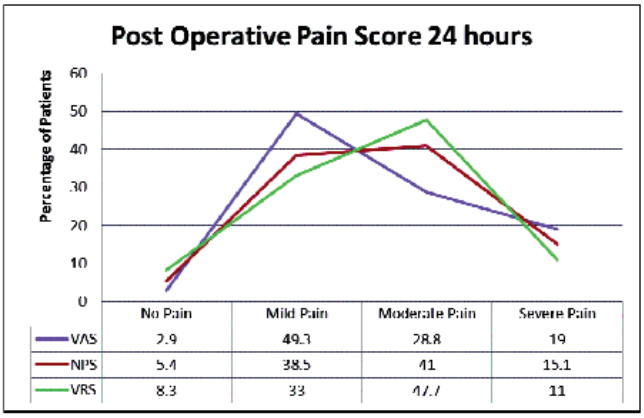
the age of seven. Sample size was calculated using the formula Z^2 (p x q)/E^2, where p equalled 0.40, q equalled 0.60, Z^2 equalled 3.84 and E^2 equalled 0.01. The statistically significant size of the sample was calculated at 96. Basic demographics were recorded, including name, age, gender and address. Name of admitting consultant and their surgical speciality were also recorded. Type of surgery, duration of surgery, drugs prescribed during the postoperative period with method of delivery was recorded as well.

Various scales have been developed to assess the severity of pain such as Numeric analogue scale (NAS), Verbal analogue scale (VRS), Visual analogue scale (VAS) and Faces scale (FS) for children. NAS is a 101mm line which could be divided into 11, 21 or 101 point pain scale. The end points of this line designate no pain and worst pain. Pain score can be delivered verbally or graphically. VRS is a descriptive pain intensity scale. Lists of adjectives are used to denote the intensity of the pain. These words may be no pain, mild pain, and moderate pain, severe, very severe and worst possible pain. Data generated from this scale can only be analysed using non-parametric statistics. VAS is a 10cm line with one end denoting no pain and the other end as worst possible pain. It can provide 101 levels of pain. All three pain scales are considered reliable though VAS has better reliability and when repeated within a short period of time, 90% of the scores are close together.[9,10]

The pain scores within 24 and 48 hours following surgery, using Neuropathic pain scale (NPS), VRS, VAS were recorded separately. All three scores were then combined to extract a cumulative pain score. Data was recorded by the same researcher using the questionnaire. Pain scores were recorded twice, once within the first 24 hours following surgery and again within 48 hours following surgery. Based on their cumulative pain scores, patients were categorised as mild or controlled (1-4), moderate or satisfactory (5-7) and severe or poor (8-10) pain groups. Comparison for adequate pain control was done with the Royal College of Anaesthetists guidelines.[11] The severity of postoperative pain was further evaluated by correlating it with various variables.

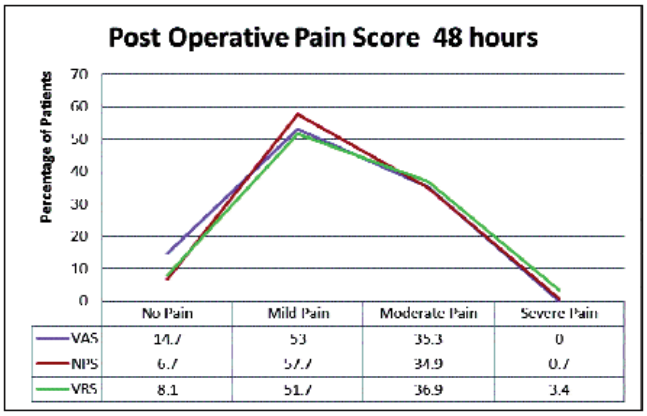
Results

Instead of the required 96 subjects, the study had 210 patients out of whom 80(38%) were male with a mean age of 44.16±20.37 years and 130(62%) were females with a mean age of 36.47±14.39 years. Among various procedures performed under GA in the hospital, 128(61%)



NAS: Numeric analogue scale. VAS: Visual analogue scale. NPS: Neuropathic pain scale.

Figure-1: 24-hour NRS,VAS, NPS induvidual pain scores.



NAS: Numeric analogue scale. VAS: Visual analogue scale. NPS: Neuropathic pain scale.

Figure-2: 48-hour NRS,VAS, NPS induvidual pain scores.

Table-1: Combined pain scores for 24 and 48 hours (N=210).

Pain score	Frequency	Pain score in 24 hours	Frequency	Pain score in 48 hours
No pain	11	5%	21	10%
Mild or controlled pain control (1 - 4)	84	40%	117	56%
Moderate or satisfactory pain control (5 - 7)	82	39%	69	33%
Severe or Poor Pain control (8 - 10)	33	16%	3	1%
Total	210	100%	210	100

cases related to laparoscopic cholecystectomy and coronary artery bypass that were performed under 2 hours; 80(38%) surgeries were performed between 2-6 hours; and 2(1%) surgeries took more than 6 hours. The most common drugs used in the hospital and in different wards were Tramadol 159(76%), Diclofenic 155(74%), Acetaminophen 115(55%) and Ketorolac 109(52%).

Overall, 84(40%) patients experienced mild pain, 82(39%) moderate pain and 33(16%) severe pain, while 11(5%) patients experienced no pain when assessed within the first 24 hours of surgery. The same patients were interviewed within 48 hours of surgery and 117(56%) were in mild pain, 72(34%) in moderate to severe pain, and 21(10%) had no pain (Table). The results, according to NPS, VRS and VAS pain scales within 24 and 48 hours following surgery were also noted (Figures-1 and 2).

Discussion

In our study, only 5% patients were completely pain-free within the first 24 hours following surgery. This figure changed to 10% when recorded within 48 hours of surgery. A study showed that as many as 106(49%) adult postoperative patients scored at least 4 or more, when interviewed using 11-point NPS.[12] A meta-analysis of published data on effectiveness of postoperative pain management showed that the overall mean (95% confidence interval [CI]) incidence of moderate-to-severe pain and of severe pain was 29.7% (26.4-33.0) and 10.9% (8.4-13.4), respectively. The overall mean incidence of poor pain relief and of fair-to-poor pain relief was 3.5% (2.4-4.6) and 19.4% (16.4-22.3), respectively (n= 20,000).[13]

A similar patient-based national survey on postoperative pain management in France in 2008 revealed that 512(26.9%) of the interviewed patients experienced severe pain during movement in the first 24 hours.[14]

Pain is the most important factor in any pathology due to which patient seeks medical attention. Despite advances in medical care delivery, pain management still remains a big challenge. With regard to the postoperative pain, if it is not controlled, one of the main objectives of the treatment is lost.[15]

The concept of analgesic ladder was first introduced by World Health Organisation (WHO) in 1986 to manage cancer pain.[16] It was based upon recommendation from leading experts in pain management. While it is quite a simple and safe system to follow, it was found to be not very suitable to manage pain in acute postoperative setting. In 1997, the World Federation of Societies of Anaesthesiologists modified the WHO Analgesic Ladder to make it more suitable for management of acute postoperative pain, burns and trauma. The modified ladder recommends starting the ladder from the top, when the pain is most severe, that is in the immediate postoperative period. At this stage, a combination of regional anaesthesia techniques, strong opioids and non-opioids analgesia can be used. And as the need decreases, analgesia can be downgraded.[17] In our study, we observed that too much emphasis was placed upon use of non-steroidal anti-inflammatory drugs (NSAIDs) and weak opioids. Use of stronger analgesia was limited to intra-theatre phase of patient's recovery in the hospital and in different wards respectively. The drugs which were most commonly prescribed were Tramadol 159(76%), Diclofenic 155(74%), Acetaminophen 115(55%) and Ketorolac 109(52%).

In 2003, a joint publication of the Royal College of Anaesthetists and British Pain Society highlighted the importance of pain management services for effective and safe management of pain. They recommended there should be provision of pain services in all hospitals to deal with acute pain. There should be a multidisciplinary management of pain involving Medical, Nursing and Pharmacy staff. Local protocols and guidelines should be developed and there should be education and training for healthcare staff.[18] A similar document detailing the basic principles of postoperative management was published by the National Health Services (NHS) of Scotland.[19] In Pakistan there are a few hospitals that have a specialised department for the provision of acute pain services.[8] In our study it was observed that that there was no specialised department for pain management and the primary attending consultant was mainly responsible for pain management, but the pain management was satisfactory.

Conclusions

Pain-free status for all patients in the postoperative phase is next to impossible, but it should remain the ultimate target for healthcare professionals. There is a need to train junior doctors and nursing staff in the use of stronger analgesics.

References

1. International Association for the Study of Pain: Pain Definitions [cited 2011 Sep 10]. Derived from Bonica JJ. The need of taxonomy. Pain 1979;6:247-8.
2. Commission on the Provision of Surgical Services: Report of the Working Party on Pain after Surgery. London: Royal College of Surgeons and Royal College of Anesthetists;1990.
3. Brennan F, Carr BD, Cousins MJ. Pain management as a fundamental human right. Anesth Analg 2007; 105:205-21.
4. Faponle AF, Soyannwo OA, Ajayi IO. Postoperative pain therapy: a survey of prescribing patterns and adequacy of analgesia in Ibadan, Nigeria. Cent Afr J Med 2001;47:70-4.

5. Vijayan R, Delilkan AE. First years' experience with an acute pain service - University Hospital Kuala Lumpur. Med J Malaysia 1994;49:385-400.
6. Jawaid M, Muhammad S, Shafiq F, Malik KA. Acute postoperative pain management by a surgical team in a tertiary care hospital: patient's satisfaction. Middle East J Anesthesiol. 2009;20:405-10.
7. Ismail S, Shahzad K, Shafiq F. Observational study to assess the effectiveness of postoperative pain management of patients undergoing elective cesarean section. J Anaesthesiol Clin Pharmacol 2012;28:36-40.
8. Hoda MQ, Hamid M, Khan FA. Audit of an acute pain service in a tertiary care hospital in a developing country. J Pak Med Assoc 2007;57:560-2.
9. Bijur PE, Silver W, Gallagher EJ. Reliability of the visual analog scale for measurement of acute pain. Acad Emerg Med 2001;8:1153-7.
10. Lara-Muñoz C, De Leon SP, Feinstein AR, Puente A, Wells CK. Comparison of three rating scales for measuring subjective phenomena in clinical research. I. Use of experimentally controlled auditory stimuli. Arch Med Res 2004;35:43-8.
11. Duncan F, Marshall J. Pain management in the recovery room. In: J Colvin JR ,Carol PJ (eds.) Raising the Standard: a compendium of audit recipes. 3rd ed. England: The Royal College of Anaesthetists; 2012, pp 296-7.
12. Fredheim OM, Kvarstein G, Undall E, Stubhaug A, Rustøen T, Borchgrevink PC. Postoperative pain in patients admitted to Norwegian hospitals. Tidsskr Nor Laegeforen. 2011;131:1763-7.
13. Dolin SJ, Cashman JN, Bland JM. Effectiveness of acute postoperative pain management: I. Evidence from published data. Br J Anaesth. 2002; 89:409-23.
14. Dominique F, Christophe F, Alain M, Philippe A. A patient-based national survey on postoperative pain management in France reveals significant achievements and persistent challenges. Pain 2008; 137:441-51.
15. Ribeiro Sb, Barroso SM, Ribeiro MF, Pinto JP, Oliveira LD, Sousa FF et al .Pain management at inpatient wards of a university hospital. Rev Bras Anestesiol 2012 ;62:599-611.
16. World Health Organization. Treatment de la douleur cancéreuse. Geneva, Switzerland : World Health Organization; 1997.
17. Vargas-Schaffer G. Is the WHO analgesic ladder still valid? Twenty-four years of experience. Can Fam Physician. 2010; 56:514-7.
18. The Royal College of Anaesthetists and the Association of Anaesthetists of Great Britain and Ireland. Third edition 2006 Good Practice A guide for departments of anesthesia, critical care and pain management.[online] [cited 2013 sep 7];Available from: URL: http://www.gmc-uk.org/goodpractice_oct2006_.pdf_25416947.pdf
19. NHS Quality Improvement Scotland. Best Practice Statement: Postoperative Pain Management. Scotland: NHS QIS. [online] 2004 [cited 2013 sep 7];Available from: URL: http://www.healthcareimprovementscotland.org/previous_resources/best_practice_statement/post-operative_pain_management.aspx.