Acute Pain (2006) **8**, 161—167

www.elsevier.com/locate/acpain

Post-operative pain management by acute pain service in a University Hospital, Thailand

Panaratana R. Yimyaem*, Wimonrat Kritsanaprakornkit, Somboon Thienthong, Duenpen Horatanaruang, Khochakron Palachewa, Watana Tantanatewin, Suthannee Simajareuk, Sunchai Theerapongpakdee

Department of Anesthesiology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand

Received 9 February 2006; received in revised form 23 August 2006; accepted 23 August 2006
Available online 9 October 2006

KEYWORDS
Acute pain service;
Post-operative;
Pain management

Summary The acute pain service (APS) was established at Srinagarind University Hospital in January 2004 and this is the systematic assessment for the first year. We assessed the quality of post-operative pain management provided by the APS. The retrospective, descriptive study included the demographic data and the *peri*-operative pain management techniques used by the APS between January and December 2004. We determined the incidence of side effects and patient-satisfaction based on self-reports of pain at rest and with movement, using either a numerical rating scale (NRS) or a verbal rating scale (VRS). The study included 1540 patients (14% of all patients receiving anaesthesia care) and of these 60% were females, 69% between 22 and 64 years of age, and 31% undergoing lower abdominal surgery. Three commonly used techniques were intravenous patient-controlled analgesia (IV PCA) (43%), single dose spinal morphine (18%) and intermittent epidural morphine (14%). More than half of the patients (58%) received 1 day of service. The mean NRS score at rest and with movement on the first post-operative day was 2.7 ± 2.5 and 5.2 ± 2.9, respectively. Patient satisfaction was 'very satisfactory' (80%). Reasons for dissatisfaction included: pain experienced during the epidural block, unrelieved post-operative pain and severe nausea/vomiting.

1. Introduction

An acute pain service (APS) plays an important role in post-operative pain management; thus, many centres have established APS to be an integral part of their patient care. In England, APS has increased from 2.8% to 42.7% to 49% of healthcare centres in

* Corresponding author. Tel.: +66 43 348 390; fax: +66 43 348 390.
E-mail address: rpanar@kku.ac.th (P.R. Yimyaem).

1366-0071/$ — see front matter © 2006 Elsevier B.V. All rights reserved.
doi:10.1016/j.acpain.2006.08.041

1990, 1994 and 1999, respectively [1,2]. APS has gained popularity throughout the world evidenced by the organization of APS in different countries such as Canada (53% in 1991) [3], Australia and New Zealand (33% in 1992—1993), 17 European countries (34% in 1993) [3—5], and the United States (42—73% in 1995) [6,7].

Although the structure and quality of each APS might be different, generally it improves the quality of pain management as demonstrated by many reports. Bardiau et al. [8] reported a 50% decrease of pain duration and persistent pain scores (over 3 cm) in APS patients. Wheatley et al. [9] showed that 90% of APS patients had only mild to moderate pain 24 h after surgery. Werner et al. [10] reported that APS patients had a 0—27% reduction of pain at rest and a 19—64% reduction in evoked pain. In addition to pain relief, APS also improves the quality of patient care in general by reducing post-operative nausea and vomiting [11], decreasing the length of the hospital stay [11,12], decreasing hospital costs [12,13], and increasing patient satisfaction [11,14].

At Srinagarind (University) Hospital, Faculty of Medicine, Khon Kaen University, the author serves approximately 11,000 surgical patients per year (data from 2003). Before the establishment of anaesthesiology-based APS in January 2004, most pain management was handled by surgeons. To explore the magnitude of the post-operative pain problem, the author did a survey in 2001 on 234 patients who had received anaesthesia care and found that half of them (51.7%) had a pain score ≥ 5 (0—10 scale) in the first 24 h (unpublished data).

In order to introduce more effective treatment modalities, six techniques for pain control are recommended by the APS, namely: (1) IV PCA (with an initial loading of 1—2 mg morphine, 1 mg bolus, a 5 min lockout interval, a 1-h limit 8—10 mg, with or without background infusion); (2) IV infusion for children (morphine 10 $\mu g\,kg^{-1}\,mL^{-1}$ or fentanyl 0.2 $\mu g\,kg^{-1}\,mL^{-1}$, infusion rate 1—3 $mL\,h^{-1}$); (3) spinal morphine (0.2—0.3 mg, single dose); (4) epidural morphine (3—4 mg, intermittent, once daily); (5) PCEA (0.06% bupivacaine + 0.02% morphine or 2 μg fentanyl infusion rate 4—9 $mL\,h^{-1}$); (6) spinal morphine + IV PCA (1 mg bolus, 5 min lockout interval, 1-h limit 8—10 mg, without background infusion). The PCA or infusion pumps were initiated in the recovery room immediately after surgery. The APS team did a daily ward round until the patient was comfortable and able to take oral analgesia. During ward rounds, pain scores, side effects and other outcomes were assessed and recorded in the APS record form.

The objective of this report is to provide a systematic assessment of the quality of *peri*-operative pain management provided by APS in 2004, its first year.

2. Materials and methods

After the Ethics Committee of Khon Kaen University approved the research protocol, the author retrospectively reviewed the acute pain service (APS) database for the period between January and December 2004. All of the patients who had received *peri*-operative pain management by the APS were included.

The authors recorded the demographic data including age, gender, site of operation and techniques of pain management. The quality of pain control was indicated by patient self-reports on pain levels at rest and with movement, recorded daily for every patient using a numerical rating scale (NRS 0—10: 0 = no pain, 10 = the worst pain) or a verbal rating scale (VRS: none = 0, mild pain = 1—4, moderate pain = 5—6, severe = 7—10) [15]. FLACC (face, leg, activity, cry and consolability) pain score [16] was used in patients <6 years of age. Also obtained from the records were the incidence of side effects and a four-point scale of patient-satisfaction with pain relief (1 = very dissatisfied, 2 = mildly dissatisfied, 3 = mildly satisfied, 4 = highly satisfied).

3. Results

During the study period, 1540 (14.2%) of the 10,865 patients who received anaesthesia care received *peri*-operative pain management from the APS. Among whom, 924 (60%) were women. The demographic data (i.e. age, site of surgery and techniques for *peri*-operative pain control) are presented in Table 1. More than half of the patients (57.7%) received 1 day of service whereas 30.3%, 10.4% and 1.5% received 2, 3 and >3 days of service, respectively. Because (1) the record form was periodically revised, (2) the single dose spinal morphine technique was only used in the first 6 months, and (3) patients' satisfaction was assessed in the last 6 months, the number of patients in each outcome was lower than the total number of patients receiving the APS service.

Pain, at rest and with movement, was assessed daily using an appropriate pain assessment tool. The self-reporting technique was used only in patients $\geq$6 years of age (n = 1225). In the first post-operative day, 1203 patients (98.2%) were able to report their pain intensity. The numerical rating