

Incident reporting by acute pain service at a tertiary care university hospital

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Abstract

Background and Aims: Provision of effective and safe postoperative pain management is the principal responsibility of acute pain services (APSs). Continuous quality assurance is essential for high-quality patient care. We initiated anonymous reporting of critical incidents by APS to ensure continuous quality improvement and here present prospectively collected data on the reported incidents. Our objective was to analyze the frequency and nature of incidents and to see if any harm was caused to patients.

Material and Methods: Data were collected from January 1, 2012 to September 30, 2013. An incident related to pain management was defined as “An incident that occurs in a patient receiving pain management supervised by APS, and causes or has the potential to cause harm or affects patient safety.” A form was filled including incident type, personnel involved, any harm caused, and steps taken to rectify it. Frequencies and percentages were computed for categorical variables.

Results: A total of 2042 patients were seen and 442 (21.64%) incidents reported during the study period, including documentation errors (136/31%), noncompliance with protocols (113/25.56%), wrong combination of drugs (56/12.66%), premature discontinuation (74/16.72%), prolonged delays in change of syringes (27/6.10%), loss to follow-up (19/4.29%), administration of contraindicated drugs (9/2.03%), catheter pull-outs (6/1.35%), and faulty equipment (2/0.45%). Steps were taken to rectify the errors accordingly. No harm was caused to any patient.

Conclusion: Reporting of untoward incidents and their regular analysis by APS is recommended to ensure high-quality patient care and to provide guidance in making teaching strategies and guidelines to improve patient safety.

Key words: Pain management, patient safety, postoperative pain, quality improvement

Introduction

One of the main responsibilities of acute pain services (APSs) is the provision of effective and safe postoperative pain relief. APS must be dedicated toward maintaining high standards of clinical practice. Continuous quality assurance is an important method to ensure high-quality patient care.

[1] Critical incident reporting is a well-known technique for continuous quality improvement.^[1,2] A critical incident in anesthesia has been defined as “An unexpected or unintended

event under anesthesia care, which causes or has the potential to lead to negative effects on the outcome if left to progress.”^[3,4]

In our hospital voluntary, anonymous reporting of anesthesia related critical incidents in the operating room was initiated in 1996. Since then, regular evaluation of the reported incidents is performed. Accordingly, strategies and guidelines have been made for prevention of recurrence of such events, and anesthesia-related critical incident reports have also been published.^[5,6]

Reporting of incidents related to acute pain management has not been practiced in a similar manner in our department. Incidents that are detected by APS members during rounds

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have been dealt with on the spot and feedback provided to the concerned personnel accordingly. However, since the incidents were not formally reported and evaluated, there was no record of how often similar incidents recurred. Furthermore, the frequency of the more serious incidents could not be identified and taken up for making guidelines. To address this issue, we initiated the process of reporting of critical incidents and errors identified by our in-hospital APS. In this article, we present prospectively collected data on the incidents/errors detected and reported by APS.

Material and Methods

Anesthesiology based APS was established at our university hospital in 2001. The APS team comprises two consultants, one fellow, one resident (rotational), and three pain nurses. Regular morning, afternoon, and evening rounds are conducted by the rotating resident and pain nurse covered by a consultant. Patients receiving continuous epidural infusions, intravenous (IV) patient controlled analgesia (PCA), and continuous IV opioid infusions are followed up by APS. The APS team also addresses nonsurgical acute pain consults requested by other specialties. Similar to the definition of critical incidents related to pain management described by Chen *et al.*,^[2] we defined an incident related to pain management as “an incident that occurs in a patient receiving pain management supervised by APS, and causes or has the potential to cause harm to the patient or affect his safety and well-being.”

All members of APS were encouraged to report critical incidents related to acute pain management. Data were collected on all incidents picked up and reported from January 1, 2012 to September 30, 2013. Standardized incident reporting forms were filled out anonymously and were filed in a designated folder, which was kept in a safe locker. The

incident was reported in detail with the description of the event, its severity, personnel involved, whether any harm was caused to the patient, and steps taken to rectify the problem. The incidents were evaluated in the pain group meetings to develop improvement strategies for the identified problems.

Statistical Packages for Social Sciences version 19 (SPSS Inc., Chicago, IL, USA) was used to generate frequencies and percentages for all categorical variables including adjustments made by APS to rectify the identified issues.

Results

During the data collection period, 2042 patients received pain management that was supervised by APS and 442 incidents (21.64%) were reported. These incidents were reported in 350 patients, as there were a number of patients in whom more than one incident had been reported at different points in time. However, we analyzed each incident independently and anonymously and grouped and categorized them according to the nature of the incident. Frequencies of the different analgesic strategies employed are provided in Figure 1. The incidents included documentation errors by nursing staff or physicians, noncompliance with protocols for epidural catheter fixation and IV line for PCA, wrong combination of drugs, simultaneous administration of two different formulations of same or similar drug group, premature discontinuation of prescribed analgesic modality by the surgical team, prolonged delays in change of syringes for PCA or IV infusion, administration of contraindicated drugs, accidental epidural catheter pull-outs, and faulty equipment. Categories of the reported incidents during the study period along with their frequencies are shown in Figure 2. The sub-types of the main categories are provided in Table 1. Prescription of contraindicated drugs included nonsteroidal anti-inflammatory drugs prescribed to

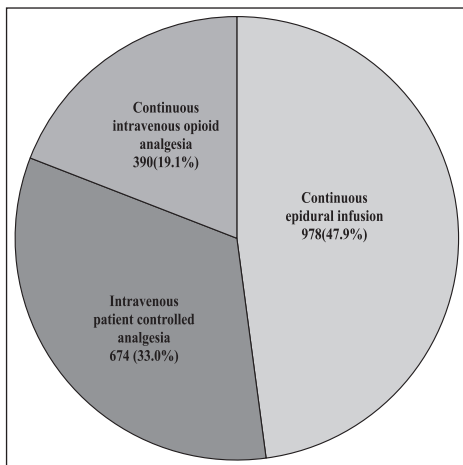


Figure 1: Different pain relief modalities employed in patients followed up by acute pain service during the study period (n = 2042)

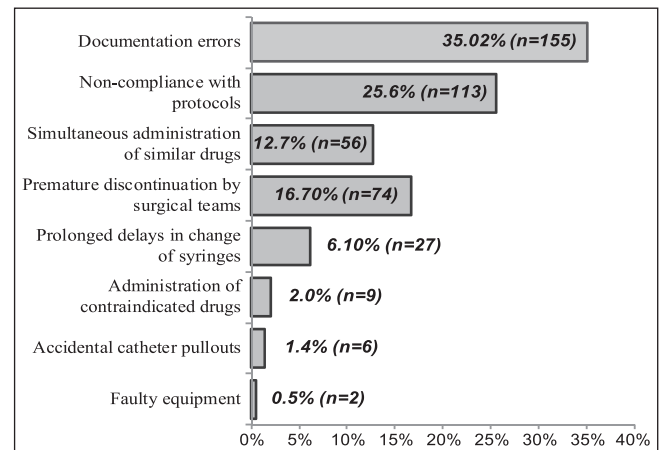


Figure 2: Categories and number of incidents reported by acute pain service during the study period (n = 442)

Table 1: Subtypes of the four main categories of incidents reported by acute pain service during the study period

Category of incidents	Number
Documentation errors (n=155)	
By nursing staff	129
By physicians	7
Failure to document causing "loss to follow-up"	19
Noncompliance with protocols (n=113)	
Epidural catheter fixation	76
Intravenous line for patient controlled analgesia	37
Simultaneous administration of similar drugs (n=56)	
Paracetamol	46
Nonsteroidal anti-inflammatory drugs	10
Premature discontinuation by surgical teams (n=74)	
Opioid infusion	54
Patient-controlled analgesia	19
Epidural	1

four patients with deranged renal function and three asthmatic patients and regular paracetamol prescribed to two patients with deranged liver functions.

The steps taken to rectify the errors included immediate feedback to the concerned team, ensuring correct documentation through audits, discontinuation of wrongly prescribed drugs, and conduct of formal teaching sessions for nurses and trainees. No harm was caused to any patient.

Discussion

Despite strict adherence to policies and procedures and awareness of safe practices, errors and mishaps can still occur.^[1] APS must be vigilant in detecting and identifying critical incidents and must promote their reporting to ensure continuous quality improvement and safe practices. Review and analysis of the reported incidents should be carried out on a regular basis to rectify the problems and prevent recurrence of similar events.

At our institution, the highest number of reported incidents was for documentation errors, mainly by the surgical ward nurses who monitor postoperative patients receiving epidural infusions, IV PCA, and continuous opioid infusions by recording hemodynamic variables, and scores for pain, motor block, sedation, nausea, and vomiting according to clearly defined scoring systems and fill out postoperative analgesia forms. The errors in documentation were picked up by APS team during rounds and included either incomplete documentation, with missing pain, nausea or sedation scores, or incorrect documentation, mainly depicting an absence of motor block where it was actually present or under-reporting of sedation scores. It is well-recognized that appropriate documentation can reduce health care errors, and it is

recommended that patient care documentation should be timely, accurate, complete, clear, and consistent.^[7] Shortage of nursing staff and high workload is an ongoing issue at our hospital, further augmented by inexperience due to high turnover of staff. This highlights the importance of dedicated pain rounds by APS team in the provision of safe and effective pain relief. The APS members conduct regular teaching sessions for surgical ward nurses regarding documentation and monitoring of patients receiving epidural infusions, IV PCA, and continuous opioid infusions. Detailed account of epidural analgesia and IV PCA is available online including monitoring protocols for nurses.

The documentation errors made by physicians involved failure of documentation by residents of the steps taken to treat unrelieved pain or manage side effects. This error could lead to repeat medication of drugs already been administered, especially at the time of changeover of teams. The faculty member-in-charge of quality assurance committee of the department now holds regular sessions on documentation for residents and conducts on-going audits to ensure completeness of documentation. Loss to follow-up occurred in 19 patients due to the failure of entry of patient's name in the APS register by the primary anesthesiologist. These patients were identified by APS team when the ward nurses contacted them regarding inadequate analgesia or side effects. Appropriate record keeping is being ensured through regular reinforcement through E-mail and discussion of the reported incidents in departmental meetings. The hand-over form used by APS at change-over of shifts has also been redesigned.

Noncompliance with guidelines regarding epidural catheter fixation and IV line for PCA was the next main category of incidents reported. Over the years, after several accidental epidural catheter pull-outs, APS has made clear protocols for fixation of epidural catheters and arranged for a special "locking" device for this purpose. In the present data, accidental catheter pull-out was seen in 6 patients. Guidelines for catheter fixation had not been followed in all of these 6 cases. Since the introduction of guidelines for catheter fixation and regular teaching of anesthesia trainees and nursing staff regarding catheter care, especially during patient transfer, the frequency of catheter pull-outs has decreased from 3.8% to 1.35% in our institution since the last reported frequency in 2010.^[8] Similarly, after facing IV line related issues, with several complaints of prolonged stoppage of PCA, maintenance of dedicated IV lines for PCA was made mandatory. Despite this, several incidents were reported on noncompliance with these guidelines. The primary goal of making clinical guidelines is to improve the quality of care,^[9] hence adherence to guidelines is important to enhance efficiency, accountability, and professionalism.^[10]

Since the availability of IV paracetamol at our hospital, APS team has identified and reported several incidents of simultaneous administration of two different formulations of paracetamol, e.g., regular IV paracetamol prescribed along with oral preparations containing paracetamol in combinations with other analgesics, like nublerol. If the incidents had not been identified, the total dose of paracetamol would have exceeded the recommended 24 h dose limit for paracetamol. High doses of paracetamol can lead to hepatic damage even in patients with previously normal liver functions.^[11]

Surgeons' cooperation is essential for successful postoperative pain management by the APS team. It was reported by APS that in 74 cases during the study period the surgeons discontinued the prescribed analgesic modality without consulting APS; in 30 cases this was done as early as the morning of the first postoperative day. On inquiry, the main concern of these surgeons was that their plan of early mobilization of the patients would be hindered by epidurals, PCA, and opioid infusions and therefore they preferred their patients to be on intermittent boluses of analgesics. The APS team usually discusses the issue with the concerned surgeon and ensures that adequate analgesia is continued until required. Lectures on postoperative pain management by a consultant anesthesiologist have now been incorporated in the core curriculum of all surgical and medical training programs.

Prolonged delay in change of syringes in patients receiving PCA and continuous infusions was a cause of break-through pain and complaints in 27 patients. Identification of this has led to the development of processes, with the cooperation of the Pharmacy Department, for online ordering and identification of personnel responsible for prompt delivery of prefilled analgesic syringes. Identification and reporting of prescriptions of contraindicated drugs are highly important in enhancing patient safety and was discovered and reported in nine cases during the study period. Timely detection of such errors can prevent serious harm to the patient.

Faulty equipment was reported in two cases, PCA device in one and an epidural infusion pump in one case. This was rectified by the change of equipment in both cases. Coordination with the bioengineering department is an essential requirement of APS to ensure timely repair.

Effective postoperative pain management requires teamwork and cooperation among anesthesiologists, surgeons, and nurses. The initiation of incident reporting mechanism in acute

pain management has helped us in identifying and addressing the weak points in the link. Prompt feedback to the concerned personnel helps in preventing recurrence of similar incidents. The limitation of this study is that all incidents were identified and reported by APS members. It is hoped that dissemination of our results would raise awareness and initiate voluntary reporting by all staff involved in caring for postoperative patients. Regular incident reporting and analysis guides APS in making standards and guidelines for establishing safer practices by identifying events that may otherwise remain undiscovered and cause harm to patients. We recommend that all APSs should implement a system of critical incident reporting in accordance with the available resources.

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Conflicts of interest

There are no conflicts of interest.

References

1. Mahajan RP. Critical incident reporting and learning. *Br J Anaesth* 2010;105:69-75.
2. Chen PP, Ma M, Chan S, Oh TE. Incident reporting in acute pain management. *Anaesthesia* 1998;53:730-5.
3. Webb RK, Currie M, Morgan CA, Williamson JA, Mackay P, Russell WJ, *et al.* The Australian Incident Monitoring Study: An analysis of 2000 incident reports. *Anaesth Intensive Care* 1993;21:520-8.
4. Gupta S, Naithani U, Brajesh SK, Pathania VS, Gupta A. Critical incident reporting in anaesthesia: A prospective internal audit. *Indian J Anaesth* 2009;53:425-33.
5. Khan FA, Hoda MQ. A prospective survey of intra-operative critical incidents in a teaching hospital in a developing country. *Anaesthesia* 2001;56:177-82.
6. Khan FA, Hoda MQ. Drug related critical incidents. *Anaesthesia* 2005;60:48-52.
7. Edwards M, Moczygemba J. Reducing medical errors through better documentation. *Health Care Manag (Frederick)* 2004;23:329-33.
8. Shafiq F, Hamid M, Samad K. Complications and interventions associated with epidural analgesia for postoperative pain relief in a tertiary care hospital. *Middle East J Anaesthesiol* 2010;20:827-32.
9. Huttin C. The use of clinical guidelines to improve medical practice: Main issues in the United States. *Int J Qual Health Care* 1997;9:207-14.
10. Campion FX, Rosenblatt MS. Quality assurance and medical outcomes in the era of cost containment. *Surg Clin North Am* 1996;76:139-59.
11. Thomas MB, Moran N, Smart K, Crean S. Paracetamol overdose as a result of dental pain requiring medical treatment — Two case reports. *Br Dent J* 2007;203:25-8.