Brief Communication

IMPLEMENTATION AND FUNCTION OF ACUTE PAIN MANAGEMENT SERVICE: Aga Khan University Hospital experience

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INTRODUCTION

Acute pain may be defined as pain that is present in patients because of preexisting diseases, the surgical procedure or the combination of disease or surgery related sources.[1] It may be the worst experience in a life of patient, as most of them perceive it the most ominous aspect of surgery. Inadequate postoperative pain relief is associated with increase in morbidity and mortality after surgery.[2] Physiological changes associated with acute pain includes irritability, nervousness, untoward cardiovascular effects like hypertension and tachycardia, splinting in lungs during ventilation leads to basal atelectasis, urinary retention and gut stasis.[3] Adequate post operative pain relief helps in blunting many of these adverse physiological changes, thereby assisting in recovery.[4] Several means have to be taken for proper pain control and on the top of it is the organization of structured Acute Pain Service (APS) in hospitals. Implementation of APS has been associated with significant reduction in postoperative pain and its associated complications.[5]

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Need for APS to supervise and administer analgesics was realized several decades ago but the real impetus was provided by the development of first acute pain services in 1985 in USA and Germany, followed by a joint report from Royal college of Surgeons of England and College of Anesthetists. They recommended the development of APS in all hospitals under taking acute surgery,[6,7] which led to widespread introduction of APS. Several APS models have been introduced since earlier studies have shown reduction in pain intensity after introduction of APS. In 2004 percentage of academic hospitals having APS had increased to 83-92% respectively in UK and Canada. Effectiveness of acute pain management service depends not only on the introduction of newer and safer modalities but also on the education of patients, nurses and other medical personals involved. Attention should be given to organizational aspect of this service rather than the analgesic techniques used.[8] Experienced consultants, residents and specially trained pain nurses have key role in running APS effectively. Retrospective audits and review of problematic areas are helpful in reducing critical events and side effects.[9] APS also helps in implementation of monitoring protocols, treatment and managing adverse effects guide lines according to the availability of recourses at particular setup.

Aga Khan University Hospital Experience: The first anaesthesia based APS was introduced in Pakistan at Aga Khan University Hospital Karachi, in July 2001, with the aim of patient safety and satisfaction. Before the introduction of APS, the surgical team used to manage the postoperative pain and anaesthesia depart-

ment was responsible for only epidural infusions. There were no dedicated residents or consultant responsible for acute pain management in the wards. As there was no established APS service in Pakistan, we had to rely on published data and guidelines available on internet, text books and indexed journals. In this article we will share our experience on implementation and functioning of successful APS in Aga Khan University Hospital Karachi. Following established guideline were used to establish APS and continuous efforts have been done to follow these guidelines.

Initial approach in the establishment of APS: We organized APS according to anaesthesiologist based APS model present in most of the institutions of United States. Initially two anaesthesia consultants took the responsibility of APS, including organization of APS team, development of guidelines and policies, arranging tutorials, clinical rounds and dealing with APS related issues. The residents of level two started their rotation for the two months rotation in acute pain service. Residents have to evaluate and manage the pain after discussing the case with the consultant. Documentation of pain assessment is also their responsibility. At night there is an on call resident in the pain service that looks after the overnight issues and discusses them with the supervising resident or on call consultant.

We acquired an APS nurse within six months after establishment of APS. She had no background knowledge of acute pain, so we had to teach her about pain management. Pain nurse is now involved in clinical rounds, teaching other nurses about core issues of service and record keeping. Pain nurse also collaborate with primary anaesthesiologist, surgeon and other nurses in wards.

Role of documentation: Initially, we used a hand written register for documentation of all the postoperative patients and residents were supposed to complete the documentation after morning round. Documentation on the register includes demographics, type of modality, drug used, pain score, any complication, intervention and plan for next 24 hours. APS resident also write down daily note on patient's bedside folder. APS team encourages all the anaesthetists about proper documentation in APMS register. Later a computerized soft ware was also introduced for data entry with the help of computer department. Ward nurses were also encouraged to assess and document pain at regular interval both at rest and on movement. This documentation was done on a pre designed assessment form.

Pain management modalities: Before APS, commonly used modalities were intramuscular narcotics, intravenous infusions and few epidural infusions. Six month after introduction of APS, we managed to start patient controlled intravenous analgesia (PCIA) service which not only improved pain control but also patient satisfaction. PCIA is gradually replacing continuous intravenous infusion and intramuscular narcotics. In order to reduce the risk and increase in patient's safety, we have developed standardized regimens for both epidural and PCIA, and encouraged other anesthesiologists to use these regimens. APS is also planning to introduce patient controlled epidural analgesia in the future.

Introduction of pain management guidelines: In order to reduce the risk and increase patient's safety[10] APS also introduced guidelines for PCIA and Epidural infusions for medical staff. These were published in the form of Booklet, which provide information about indications, side effects, management of complications and care of these modalities. Simple verbal rating pain scale was also introduced to guide pain assessment and documentation. This scale ranges between zero (No pain) to the scale of three (Severe pain).

Assessment and monitoring forms for PCIA and Epidural infusion were also designed by APS, which are being utilized by nursing staff in recovery room and surgical wards. Assessment forms provide information about patient's demographics, type of surgery, regime used, PCIA settings, co-analgesia and anti emetics if prescribed. Along with general nursing instructions assessment, a key is also provided

for scoring pain, sedation, nausea and motor block in case of epidural.

Continuous quality assurance activities: Consultants and residents are actively involved in conducting audits for improving patient care and implementation of safe practice. Major problems identified as a result of such audits are nausea, vomiting, motor block and epidural catheter pullouts. After identification of these problems, corrective measures have been instituted to overcome these incidents. It became possible because of clinical vigilance, continuous assessment and documentation. Accidental epidural catheter pullout is used as a quality indicator and an audit has been started to overcome this problem.

Interdepartmental collaboration: One of the key factors for acute pain management is the collaboration between AP team and other departments like nursing, surgery, pharmacy and physiotherapy. Policies for pain assessment and documentation were developed with the help of nursing department. In addition to that, nursing department has also helped us in the education of nurses in epidural catheter care. To reduce the risk of infection and avoid calculation errors, APS asked the pharmacy to provide piggy bags of standard local anaesthetic (bupivacaine) mixed with narcotic *(fentanyl)* in three different concentrations (0.125%, 0.1% and 0.0625% with Fentanyl 2 microgram / ml) for epidural use.

Impact of education: Education of healthcare providers and patients is an important aspect of pain management. Several educational methods have been used for health care providers which included regular interactive sessions for nurses and residents, hands on teaching of residents, daily discussions with pain nurse and residents who are rotating in APS. After identification of relevant nurses regular educational sessions are being arranged. We have also designed booklets on PCA and Epidural infusions for medical staff. These booklets are available in all surgical wards as a reference and for troubleshooting. At the preoperative clinic, anaesthesiologist not only discusses different options for postoperative pain management but also provide information on PCA and epidural infusion if required. Acute pain nurse also visited the patients preoperatively in whom PCIA is planned and teach them the usage of pain control methods either in the ward or in the pre induction area. Two patient education booklets on PCIA and epidurals infusion were also published in English and local Urdu language. These booklets not only provide information about pain modalities but also their advantages and disadvantages. Acute pain service is involved in delivering interactive sessions to the other specialties for managing pain, its importance and the usefulness of different modalities being used.

CONCLUSIONS

Acute Pain management Service has a key role in effectively running analgesic regimes which in turn helps in reducing the morbidity and mortality of patients. Implementation of this service is challenging requiring role model, dedicated team and continuous evaluation.

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