

# Future Challenges in Acute Postoperative Pain

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Pain is not a symptom, it is a syndrome complex. In the recent past, many hospitals in the developed countries have started special postoperative pain services, which are staffed by anaesthesia department personnel. The aim of such service is to provide the best and most appropriate postoperative analgesia for surgical patients; even for those who undergo outpatient surgery.

It is an admitted fact that most patients need analgesia not only at the time of their operation but also in the postoperative period. Complete reversal or withdrawal of all operative analgesia at the end of surgery is, therefore, not desirable. However, anaesthesia must be reduced to the degree that CNS and other organ function is restored to safe levels and recovery score<sup>1</sup> should be kept in mind. I would say that our recovery score which was published in 1989 in different UK journals, has been now, after 10 years, got place in a text book "Lee's Synopsis of Anaesthesia (1999 Ed.)". It has been mentioned to be more reliable than any other score.

For patients undergoing major surgery, the other option may be to continue operative levels of analgesia in the postoperative intensive care unit, with patient mechanically ventilated and aggressively monitored.

Ideally the patients should be seen in outpatient department before admission, so that the anaesthetist could discuss with the patient about various analgesic modalities. He can also examine the patient and suggest ways and means to make him fit for operation. So outpatient clinics or pain clinics are necessary for the scientific anaesthesia practice. Acute postoperative pain service can be organized by department of anaesthesia. One of the senior anaesthetists or pain fellow staffs the post anaesthesia recovery unit on a weekly basis. The fellow who assesses the patient's postoperative analgesia level should see all patients during this period. A second year trainee or FCPS-II candidates can also learn the techniques. Once the junior anaesthetists are conversant with various modalities of pain relief, they can then be deputed to master various pain syndromes. For example one anaesthetist (preferably a lady) may provide service for "painless delivery". Another one may be asked to treat intractable pain in the wards. Pain relief does not cost much. Its management taxes the doctor and relieves the patient.

## OPTIONS FOR PAIN MANAGEMENT

Approximately 500 different types of surgical procedures are performed in operation theatres around the world and about 40% of these procedures are performed on an outpatient basis<sup>2</sup>.

There are various options for postoperative pain management such as multimodal, pre-emptive analgesia and PCA (patient controlled analgesia) etc.

a. Intramuscular or intravenous narcotics. It may be patient controlled analgesia (PCA) or continuous I/V infusion. Commonly available narcotic analgesics are used.

b. Epidural or sub-arachnoid administration of narcotics either intermittently or by continuous infusion.

c. Epidural administration of local anaesthetics.

d. Epidural narcotic analgesia.

e. Peripheral nerve blocks with local analgesics, TENS or acupuncture.

## SELECTION OF TECHNIQUE FOR PAIN RELIEF:

It depends upon intensity of pain, site of surgery, anticipated duration of severe pain, physical status of patients and nursing staff. All these factors interact to a varying degree and this interaction influences the final choice of analgesia and the mode of delivery.

With narcotics nausea, vomiting, itching, urinary retention, respiratory depression and varying degree of CNS sedation or depression can be seen. With local anaesthetics systemic toxicity, prolonged sensory, motor or sympathetic blockade may be seen. Neural blockade may also cause urinary retention, venous stasis, and hypotension etc.

The site of operation will determine the choice of analgesia e.g. operation above C4 will need systemic narcotics. Epidural analgesia will cover entire peripheral nervous system from T1 to S4. Narcotics and local anaesthetics can both be given via epidural route.

Nerve blocks can be used in outpatients also. A number of recently introduced techniques of continuous peripheral nerve blocks have made it possible to provide prolonged analgesia of the limbs as well as ben-



eficial effects of prolonged sympathetic blockade. The local anaesthetic techniques provide postoperative analgesia and reduce pain to a level that can be controlled by oral analgesics once the patient arrives home. Examples include penile block in circumcision, infiltration of hernia incision, femoral nerve block for femoral shaft fracture and knee arthroscopy, ankle block for foot procedures; axillary block for wrist and hand surgery; and digital nerve block for finger and toe surgery etc.

It should be remembered that small children do feel pain. Even in a neonate, circumcision should be done under local anaesthesia. Intrapleural blockade recently introduced<sup>3</sup> involves insertion of an epidural catheter into intrapleural space through 16 gauge Touhy needle at 8th inter costal space. The catheter is advanced 5-6 cm into the pleural space. The catheter can be placed during thoracotomy. Local anaesthetics can also be instilled through chest tube. Usually 30 to 40 ml of 0.5% Bupivacaine is required for pain relief. The analgesia lasts for 8 to 36 hours after a single injection<sup>4</sup>.

#### **CONTINUOUS ANALGESIA:**

Continuous infusion analgesia is aimed at maintaining the drug concentration at a constant level, which does not occur with I/M administration. The infusion can be performed with simple infusion pump but needs careful adjustment of infusion rate. It is useful and appropriate for patients who are exhausted, confused, debilitated or too young to use PCA. This new equipment allows the patients to self-administer bolus doses of drugs by means of programmable pump.

Epidural analgesia with intermittent or continuous administration of the drug is rapidly becoming the technique of choice for many postoperative patients<sup>5</sup>. Local as well as narcotic drugs can be administered through epidural catheter. One should remember that narcotics sometimes take longer to act, so local anaesthetics should be injected through epidural catheter for sure pain relief. With epidural block there is a less chance of motor block which is beneficial for early mobility of the legs and early discharge from hospital. Patients whose pain is below T1 level are considered suitable candidates for epidural analgesia.

#### **TENS AND ACUPUNCTURE:**

Transcutaneous electrical nerve stimulation (TENS) is a modified form of acupuncture. Two electrodes are placed one on each side of surgical incision. Stimulation is given with moderate intensity and frequency, which is within the comfortable limits for the patient. There is evidence of a significant decrease in the dosage of pain medications and pulmonary function improves<sup>6,7</sup>. Pain relief is presumably due to action of the endogenous opiates at the spinal level.

Working party on acute pain (Royal College of Surgeon's) report 1990 states:

"The treatment of postoperative pain in British hospitals has been inadequate and has not advanced significantly for many years."

#### **HOW TO IMPROVE:**

- 1) Education and training of medical and nursing staff (about 82% doctors admit that they are ill educated).
- 2) Implementation of routine formal pain assessment for all patients.
- 3) Introduction of new methods of pain relief.
- 4) Provision of appropriate facilities and resources.
- 5) Standard policy on pain relief.
- 6) Use of counseling.
- 7) Research and audit.

#### **SUMMARY**

Modern anaesthesia has advanced to a point at which all patients can be guaranteed a pain free intra-operative period. Unfortunately we often fall short when it comes to providing postoperative pain relief. It is not surprising; therefore, that what patients often fear most about a surgical procedure is the pain they expect to experience afterwards. There are so many reasons why postoperative pain should be effectively treated, aside from alleviating patient discomfort. The adverse effects of postoperative pain have been shown to impair pulmonary function and gastrointestinal motility; to produce cardiovascular instability as well as deep vein thrombosis due to decreased mobility. Several options are available to treat postoperative pain, which should be utilized adequately and tailored to individual patients needs.

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