

# Editorial

## Management of Acute Postoperative Pain: Current Recommendations



### INTRODUCTION

More than 80% of surgical patients experience acute postoperative pain after their surgeries. Among them, 75% of patients with postoperative pain grade the severity of pain as moderate, severe, or extreme.

### DEFINITION OF PAIN

“An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

The American Pain Society (APS), with input from the American Society of Anaesthesiologists (ASA), has finalized guidelines on management of postoperative pain to promote evidence-based, effective, and safer postoperative pain management in children and adults. In this publication, they have addressed preoperative education, perioperative pain management planning, and use of different pharmacological and nonpharmacological modalities. They have also issued guidelines on organizational policies and procedures, and transition to outpatient care.<sup>1</sup>

The APS, with input from the ASA, convened a panel of 23 members with expertise in anesthesia and/or pain medicine, surgery, obstetrics and gynecology, pediatrics, hospital medicine, nursing, primary care, physical therapy, and psychology to review the evidence and formulate recommendations on management of postoperative pain.

The aims and objectives of these guidelines is to provide recommendations for management of postoperative pain by all clinicians who manage postoperative pain.

However, these are not recommended for management of chronic pain, acute nonsurgical pain, dental pain, trauma pain, and periprocedural (nonsurgical) pain.

### GUIDELINES

- Preoperative Education and Perioperative Pain Management Planning:
  - Patient should be provided with family-centered, individually tailored education (and/or responsible caregiver), including information on treatment options for postoperative pain management. Doctors should document the treatment plan and targets for postoperative pain management.  
*(Strong Recommendation, Low-Quality Evidence)*
- The parents (or other adult caregivers) of children who undergo surgery receive instruction in developmentally appropriate methods for assessing pain. They should be counseled on use of appropriate analgesics and other modalities of relieving pain.  
*(Strong Recommendation, Low-Quality Evidence)*
- Preoperative evaluation should be conducted to guide the perioperative pain management plan. It helps us:
  - To exclude medical and psychiatric comorbidities,
  - To know the concomitant medications,
  - To know the history of chronic pain, substance abuse, and previous postoperative treatment regimens and responses.  
*(Strong Recommendation, Low-Quality Evidence)*
- The pain management plan should be adjusted based on adequacy of pain relief and presence of adverse events.  
*(Strong Recommendation, Low-Quality Evidence)*
- There are different pain scales available to assess pain (Table 1).<sup>1</sup> We should use a validated pain assessment tool to know and monitor responses to treatments and adjust treatment accordingly.  
*(Strong Recommendation, Low-Quality Evidence)*
  - Face and Visual Analog Score scales:
  - For older children and uncommunicative adults

**Table 1:** Examples of validated pain intensity assessment scales<sup>1</sup>

Name of scale	Rating system
NRSs	Six-point NRS (NRS 0-5) Eleven-point NRS (NRS 0-10)
VRS	Twenty-one point NRS (NRS 0-20) Four-point VRS Seven-point graphic rating scale Six-point present pain inventory (PPI)
Visual analogue scales	Commonly rated 0 to 10 cm or 0 to 100 mm.
Pain thermometer	Combines a visual thermometer with verbal descriptions of pain
Faces rating scales	Faces pain scale-revised Wong-baker FACES pain rating scale Oucher scale

NRS: Numeric rating scale; VRS: Verbal rating scale

- Balanced Analgesia (Multimodal Analgesia)

*It is the method of choice*

Combinations of different analgesics and local anesthetics (LA) can provide effective pain control at lower doses and thus with less side effects.

For example, epidural LA and opioids; other LA blocks and nonsteroidal anti-inflammatory drugs (NSAIDs) with an opioid as rescue analgesic.

It is ideal to treat the postoperative pain in adults and children by using multimodal analgesia. In this technique, we use a variety of analgesic medications and techniques combined with nonpharmacological interventions, for the treatment of postoperative pain in children and adults (Table 2).

*(Strong Recommendation, High-Quality Evidence)*

**Table 2:** Options for components of multimodal therapy for commonly performed surgeries

Type of surgery	Systemic pharmacologic therapy	Local, intra-articular or topical techniques*	Regional anesthetic techniques*	Neuraxial anesthetic techniques*	Nonpharmacologic therapies†
Thoracotomy	Opioids‡ NSAIDs§ and/or acetaminophen Gabapentin or pregabalin§ IV ketamine		Paravertebral block	Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
Open laparotomy	Opioids‡ NSAIDs§ and/or acetaminophen Gabapentin or pregabalin§ IV ketamine IV lidocaine	Local anesthetic at incision IV lidocaine infusion	Transversus abdominis plane block	Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
Total hip replacement	Opioids‡ NSAIDs§ and/or acetaminophen Gabapentin or pregabalin§ IV ketamine	Intra-articular local anesthetic and/or opioid	Site-specific regional anesthetic technique with local anesthetic	Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
Total knee replacement	Opioids‡ NSAIDs§ and/or acetaminophen Gabapentin or pregabalin§ IV ketamine	Intra-articular local anesthetic and/or opioid	Site-specific regional anesthetic technique with local anesthetic	Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
Spinal fusion	Opioids‡ Acetaminophen† Gabapentin or pregabalin§ IV ketamine	Local anesthetic at incision		Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
Cesarean section	Opioids‡ NSAIDs§ and/or acetaminophen	Local anesthetic at incision	Transversus abdominal plane block	Epidural with local anesthetic (with or without opioid), or intrathecal opioid	Cognitive modalities TENS
CABG	Opioids‡ Acetaminophen Gabapentin or pregabalin§ IV ketamine				Cognitive modalities TENS

CABG: Coronary artery bypass grafting; \*Intra-articular, peripheral regional, and neuraxial techniques typically not used together; †as adjunctive treatments; ‡Use IV PCA when parenteral route needed for more than a few hours and patients have adequate cognitive function to understand the device and safety limitations; §May be administered preoperatively; ¶On the basis of panel consensus, primarily consider for use in opioid-tolerant or otherwise complex patients

- We can use adjunctive therapies like transcutaneous electrical nerve stimulation for the treatment of postoperative pain.  
(*Weak Recommendation, Moderate-Quality Evidence*)
- Consider the use of cognitive-behavioral modalities in adults as part of a multimodal approach.  
(*Weak Recommendation, Moderate-Quality Evidence*)
- It is preferable to use oral opioids over IV opioids for postoperative analgesia in patients who can be given opioids orally.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- Better to avoid using the intramuscular route for the administration of analgesics for management of postoperative pain.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- It is preferable to use IV patient-controlled analgesia (PCA) for postoperative analgesia when the parenteral route is needed.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- The recommendation is against routine basal infusion of opioids with IV PCA in opioid-naive adults.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- We should institute appropriate monitoring of sedation, respiratory status, and identify any other adverse events in patients who receive systemic opioids for postoperative analgesia.  
(*Strong Recommendation, Low-Quality Evidence*)
- Adults and children should be provided with acetaminophen and/or NSAIDs as part of multimodal analgesia for the treatment of postoperative pain in patients if there are no contraindications.  
(*Strong Recommendation, High-Quality Evidence*)
- We can also consider giving a preoperative dose of oral celecoxib in adult patients if there are no contraindications.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- Gabapentin or pregabalin as a component of multimodal analgesia can be considered.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- Intravenous ketamine can also be considered as a component of multimodal analgesia in adults.  
(*Weak Recommendation, Moderate-Quality Evidence*)
- Intravenous lidocaine infusions can be used in adults who undergo open and laparoscopic abdominal surgery who do not have contraindications.  
(*Weak Recommendation, Moderate-Quality Evidence*)
- The surgical site-specific local anesthetic infiltration for surgical procedures with evidence indicating efficacy should be considered.  
(*Weak Recommendation, Moderate-Quality Evidence*)
- Before circumcision, topical LA should be used along with nerve blocks for effective relief of pain.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- Panel does not recommend intrapleural analgesia with LA for treating pain after major thoracic surgery.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- The surgical site-specific peripheral regional anesthetic techniques in adults and children for procedures with evidence indicating efficacy should be considered.  
(*Strong Recommendation, High-Quality Evidence*)
- Continuous, local anesthetic-based peripheral regional analgesic techniques can be used (epidural analgesia) when we require to extend the duration of effect of a single injection.  
(*Strong Recommendation, Moderate-Quality Evidence*)
- We can also consider addition of clonidine as an adjuvant for prolongation of analgesia with a single bolus injection of peripheral neural blockade  
(*Weak Recommendation, Moderate-Quality Evidence*)
- We should consider using neuraxial analgesia for major thoracic and abdominal procedures, wherein the analgesia can be extended particularly in patients at risk for cardiac, pulmonary complications, or prolonged ileus.  
(*Strong Recommendation, High-Quality Evidence*)

- Appropriate monitoring of patients who have received neuraxial interventions for perioperative analgesia should be provided.  
(Strong Recommendation, Low-Quality Evidence)
  - Hospitals should be able to design and formulate policies and procedures for safe and effective postoperative pain control. There should be periodical audits of these procedures to fine-tune them.  
(Strong Recommendation, Low-Quality Evidence)
  - Hospitals should have pain clinic and provide clinicians with access to consultation with specialist for those patients with inadequately controlled postoperative pain or at high risk of inadequately controlled postoperative pain (e.g., opioid tolerant, history of substance abuse).  
(Strong Recommendation, Low-Quality Evidence)
  - The hospitals in which neuraxial analgesia and continuous peripheral blocks are performed should have trained individuals to manage these procedures. There should be documented policies and procedures as per standard guidelines. These guidelines should be followed uniformly.  
(Strong Recommendation, Low-Quality Evidence)
  - We should conduct training programs to all adults, children, and primary caregivers on the pain treatment plan including the use of analgesics after hospital discharge.  
(Strong Recommendation, Low-Quality Evidence)
- Evidence supports the use of multimodal regimens in many situations, although the definite components of effective multimodal analgesia will vary depending on the patient, setting, and surgical procedure.

**PAST VS PRESENT**

Following are the two modalities of treatment of postoperative pain:

Conventional traditional:

*Unimodal treatment*

- Palliate pain
- Use minimal dose of opioids
- Administer single systemic analgesic

Modern

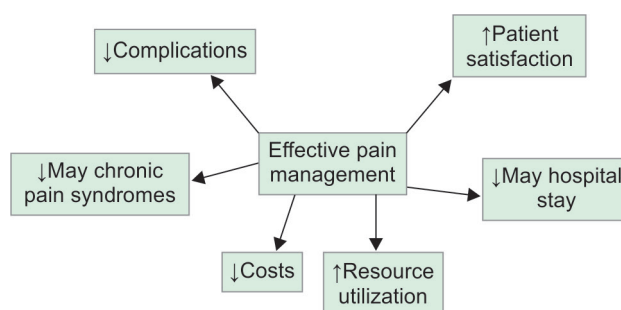
*Multimodal balanced analgesia*

- Prevent pain
- Use combination drug therapy
- Use scheduled dosage or PCA
- Regional

Effective pain management helps in increasing patient satisfaction and resource utilization. It also cuts down hospital stay and costs. It reduces the chances of patients getting complications like chronic pain, etc. (Fig. 1).

It is said that “The Art of life is the art of avoiding pain.”

Hence, treating the pain throughout the perioperative period is possible, but probably we are not always doing an adequate and complete job.



**Fig. 1:** Benefits of effective postoperative pain management

## REFERENCE

1. Chou R, Gordon DB, de Leon-Casasola OA, Rosenberg JM, Bickler S, Brennan T, Carter T, Cassidy CL, Chittenden EH, Degenhardt E, et al. Management of postoperative pain: a clinical practice guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. *J Pain* 2016 Feb;17(2):131-157.

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