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主題：

漫談胸腔手術後止痛

摘要：

Enhanced Recovery After Thoracic Surgery (ERATS) protocols provide the evolution of pain management strategies for patients undergoing thoracic surgery. The following points summarize the critical components:

1. ERATS Overview:

- Enhanced Recovery After Surgery (ERAS®) principles, initially developed in the early 2000s, have been adapted for thoracic surgeries, creating ERATS.
- ERATS protocols target optimal patient care and recovery for those undergoing thoracotomies or minimally invasive thoracoscopic surgeries (MITS), such as video-assisted or robotic procedures.

2. Patient Demographics and Challenges:

- Patients undergoing thoracic surgery often include elderly individuals with existing cardiopulmonary and metabolic conditions, making postoperative management challenging.
- Pain and pulmonary impairment post-surgery significantly impact recovery and outcomes.

3. Pain Management Strategies:

- Effective pain control within ERATS employs opioid-sparing strategies, including:
 - Posterior intercostal nerve blocks.
 - Surgical wound infiltration with long-acting local anesthetics like liposomal bupivacaine.
- These approaches help reduce postoperative pain and opioid use, thereby



decreasing the risk of complications and shortening hospital length of stay (LOS).

4. Surgical Approach and ERATS Benefits:

- MITS is highlighted as inherently associated with ERATS due to its less invasive nature, which supports faster recovery and less pain compared to traditional thoracotomies.
- Implementation of ERATS in various medical centers has shown improved outcomes, such as reduced pain scores, lower opioid requirements, fewer complications, and decreased LOS.

5. Systematic Review of Pain Management in MITS:

- A systematic review (covering literature from 2010-2021) identified effective pain management approaches for video-assisted thoracoscopic surgery (VATS), recommending:
 - Basic analgesia (paracetamol, NSAIDs, or COX-2 inhibitors) pre-operatively and post-operatively.
 - Intra-operative dexmedetomidine infusion as a supportive option when regional blocks are not feasible.
 - Regional analgesic techniques such as paravertebral or erector spinae plane blocks as first-choice options, with serratus anterior plane blocks as alternatives.
 - Opioids should be reserved for rescue pain relief only.

This information highlights the development and advantages of ERATS, focusing on enhanced pain management protocols that promote recovery and reduce opioid reliance for thoracic surgery patients.