New Trends in Acute Post Operative Pain Management after Cardiothoracic Surgery

**Nature of thoracotomy pain:**
It is mostly a neuropathic pain however, muscle pain and joints pain are also common.
Recently an animal models explaining thoracotomy pain was studied and proved that the incidence of visceral pain is not uncommon. There is a high incidence of persistent pain after cardiothoracic surgery(1).

**Management of acute postoperative pain:**
Can be by systemic analgesia; e.g. Narcotics, and NSAIDs or Acetaminophen
Local and Regional Anesthesia; Like Thoracic Epidural, Paravertebral Block, Intercostal Nerve Blocks, and Intra-pleural Catheters(2)

**Other Interventions:**
*Cryoanalgesia*
*Non divided intercostals muscle flap*

**New trends in pharmacological management:**
1-Ketamine; that prevents centralization of pain which is common in neuropathic pain(3).
2-Cox-2 inhibitors; Surgical trauma results in the release of a variety of inflammatory mediators including prostaglandin E2 (PGE2). There appears to be two forms of nociceptive input from peripheral inflamed tissue to the central nervous system which can trigger the release of “stress response” mediators. The first is mediated by neural activity innervating the area of injury which may be reduced with local anesthetic neural blockade and/or peripherally-acting COX-2 inhibitors. The second pathway is humorally mediated, in which interleukins reach the central nervous system via systemic pathways leading to upregulation of COX-2 in the central nervous system. This latter pathway is not affected by regional anesthesia and only blocked by centrally acting COX-2 inhibitors
3-Gabapentin; which is an anticonvulsant which has recently been approved for the treatment of PHN, but it does not have FDA approval for other neuropathic pain syndromes. Its mechanism of action has not been completely identified(4).
4-Pregabalin; is currently under trial for this indication.

**References:**

2-E. de Medicis;Gabapentin and post-thoracotomy shoulder pain
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4-Choon looi Bong, Miny Samuel, Ju Mei NG, Chris IP Yam; Effects of Preemptive epidural analgesia on postthoracotomy pain; J Cardiothorac Vasc Anesth. 2005 Dec;19 (6):786-793.