



## POSTOPERATIVE PAIN MANAGEMENT IN THORACIC SURGERY

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Thoracic surgery is one of the most painful surgical procedures. Pain after these procedures can be debilitating and lead to poor outcomes, including respiratory complications such as atelectasis and pneumonia, as well as longer hospital stays, poor quality of life, and chronic persistent postoperative pain syndrome.

There are many analgesic options for patients undergoing thoracic surgery including systemic agents and regional anesthesia. A multimodal analgesic approach is thought to be the most effective way to treat these patients.

The incidence of post-thoracotomy pain after 3 months of surgery depends on the surgical approach. With the thoracotomy approach there is an incidence of around 40-50% and with VATS, despite having better pain management, the incidence is still around 30%.

There are different kinds of pain involved in thoracic surgery. Nociceptive somatic afferents are the main source of pain for patients and come from the intercostal nerves. Nociceptive visceral afferents arise from the vagus nerve and receive nociceptive impulses from the lungs, mediastinum and mediastinal pleura and the phrenic nerve receives impulses from the diaphragmatic pleura.

The prevention and treatment of pain starts before surgery. Including patients in a prehabilitation program has given us the ability to detect those who are at risk of developing chronic pain. Two important studies have been done in Spain in recent years.

The purpose of the first one was to find out if there are any genetic and clinical factors that are associated with chronic postsurgical pain. The studied population was in Catalonia and no genetic association was found. However, it was found that age, quality of life and previous experience with pain were important factors to take into account.

The same investigators developed a second study and their aim was to propose a presurgical risk model to identify those patients at risk of developing chronic pain. This preoperative risk identified more than 73% of cases. That risk model is based on surgical procedure, age, physical health status, mental health status, preoperative pain in the surgical field and preoperative pain in another area. Another important risk factor is catastrophizing, but this requires more investigation.

If we use the presurgical risk model, we have two potential treatments: Duloxetine and mindfulness. Also, there are some medications that have been used before surgery as pre-emptive treatment. These are gabapentinoids. Moreover, during surgery the treatments that have proven to be effective are: IV Lidocaine, NSAIDs and Ketamine.

During surgery, it is recommended to use a multimodal approach with intravenous analgesia plus nerve blocks. The most important ones are epidural and paravertebral. Nowadays, there are more new blocks that have proven to be effective such as the erector spinae plane, intercostal nerve, midpoint transverse process, retrolaminar and serratus anterior blocks.

Finally, patients that are affected by chronic pain are characterized by a significant neuropathic component. Therefore, the first line of treatment options consisting of gabapentinoids, tricyclics and lidocaine patches is required, and a multimodal approach must always be implemented.