PCEA vs. PCA for post-thoracotomy pain: Is this any longer the question?

As the currently published research illustrates, the topic of epidural analgesia for major surgery continues to fascinate the anaesthetic and surgical community despite being one of the most extensively studied matters in numerous systematic reviews. Epidural analgesia regardless of analgesic agent (i.e., local anaesthetic only, combination of local anaesthetic and lyophiilic/hydrophilic opioid, and lyophiilic opioid only), epidural delivery technique (continuous epidural infusion (CEI) or patient-controlled epidural analgesia (PCEA)), type of surgery determining ultimately the location of catheter (thoracic or lumbar) and type of pain (at rest or during movement) provides better analgesia than any type of parenteral opioid including that delivered via intravenous patient-controlled devices (PCA) for up to four days postoperatively. Epidural analgesia is also associated with less nausea, vomiting and sedation than parenteral opioids, although a higher incidence of hypotension, urinary retention and motor block is common, especially with the CEI variant. The need for prolonged mechanical ventilation and time to tracheal extubation after major surgery is reduced, and other complications such as cardiovascular events, pulmonary complications, gastric and renal complications are also reduced, especially with thoracic epidural. The effect on postoperative mortality is still unclear. Hence, excellent pain control and decreased perioperative morbidity propelled epidural analgesia to the status of gold standard for managing pain after major surgery.

Thoracic surgery is one of the clinical areas where there is universal agreement between surgeons and anaesthetists as to the value of aggressive pain management in decreasing postoperative immediate and long-term morbidity. A multimodal multidisciplinary approach to postoperative pain control to include scrupulous surgical technique and appropriate perioperative analgesia permitting adequate patient mobilization and physiotherapy is mandatory for reduced complications. There is recent Level 1 evidence available that continuous epidural analgesia decreases pain scores and maintains pulmonary function better than intravenous patient-controlled analgesia in thoracic surgery. In the same way intravenous opioid PCA provides better analgesia and increased patient satisfaction compared to more conventional parenteral methods of opioid administration. PCEA increasingly becomes the standard method of epidural administration in many institutions. In a recent meta-analysis, Wu and colleagues acknowledge the need to systematically compare the two analgesic alternatives for major inpatient surgery (epidural analgesia vs. systemic opioids) when both are delivered via patient-demand devices (PCEA vs. PCA). These authors demonstrate that PCEA (n = 353 patients) provides better analgesia compared to intravenous opioid PCA (n = 1,583 patients) for overall pain, pain at rest and with activity (P < 0.001). Although analgesia via CEI (n = 1,272 patients) is statistically better than analgesia via PCEA for all types of pain (P < 0.001), the latter offers the benefit of less motor block, nausea and vomiting. The results of the currently published study are, therefore, neither new, nor surprising. It emphasises yet again that PCEA is a meaningful epidural analgesia delivery mode that should be more often utilized in thoracotomy patients.

The authors of the present study choose to deprive their patients of intraoperative epidural analgesia disregarding the concept of pre-emptive analgesia. This theory is based on the assumption that a pharmacological analgesic agent or regional anaesthesia technique, administered prior to a noxious stimulus such as surgery, produces a painless post-injury state by preventing central sensitization of the nervous system. A recent meta-analysis indicated that epidural analgesia initiated before the thoracotomy incision was associated with a statistically significant reduction in the severity of acute dynamic pain in the first 48 hr postoperatively compared to thoracic epidural analgesia initiated after surgery completion. Therefore, it is sensible to always use epidural analgesia intraoperatively, and decrease in the same time the need for opioids and their unwanted systemic side effects.

Despite unambiguous evidence, acute pain after thoracotomy continues to represent a challenge for the anaesthetic and surgical community. Although thoracic epidural is perceived as the gold standard analgesia technique, the incidence of failed thoracic epidural is still high even in experienced hands. Alternative regional anaesthesia techniques such as paravertebral analgesia, confirmed to be equally analgesic-effective with thoracic epidural with fewer side effects, and superior to parenteral opioids, may be used in selective cases. Other authors suggest that intravenous opioid PCA should be concomitantly offered to thoracic surgery patients in addition to epidural or paravertebral analgesia although there is little evidence for this approach. It is my belief that an individual evidence-based perioperative analgesia regime, highly effective, with minimal side effects, and user-friendly should be discussed and agreed in partnership with the patient, aiming to decrease the potentially harmful consequences of thoracic surgery on the immediate and long-term patient well being.

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Neurobiological underpinnings of obsessive compulsive disorder and schizophrenia: Explanations for disability and severity

In the present issue of this journal a paper examines the family burden, quality of life and disability in obsessive compulsive disorder (OCD). Gururaj et al., demonstrate in a study of inpatients with OCD similar rates of disability and family burden in comparison to those with schizophrenia. The authors are commended for detailed examination of the impact of OCD on the family that has not been done extensively in the past.

Although the study is limited by the fact that the sample includes only inpatients, this paper is still important because it shows that in severe cases of OCD, the level of dysfunction is significant. Previous work by Kessler et al., has shown that in the US general population OCD has a high level of impairment and this seems to be higher than other anxiety disorders. Further study of the impact of OCD on family burden and disability is required utilizing random samples to reduce the selection bias of treatment-seeking samples.

One possible explanation for these findings might involve looking at the neurobiological correlates of OCD and schizophrenia. Although there has been a significant interest in the amygdala and the prefrontal cortex in the anxiety disorders, there is substantial evidence of dysfunction in the cortical striatal-thalamic network among patients with OCD and schizophrenia. This dysfunctional network may account for some of the obsessions, for example that in severe form be associated with lack of insight. At times, the obsessive thoughts are so strong that they are at a delusional level of severity. Even in the DSM criteria there is a subtype of OCD called “OCD with poor insight” and this severe form of OCD is often associated with significant and severe dysfunction.

Neuroimaging studies in OCD have shown that response to pharmacotherapy and behavior therapy involves changes in blood flow to orbital frontal cortex and striatal structures. While neuroimaging studies in other anxiety disorders, specifically social phobia, have shown that response to treatment is associated with reduction in blood flow to the amygdala. A large body of literature suggests that blockade of dopamine in striatal structures is important in the treatment of schizophrenia. The neuroimaging literature is limited by sample sizes and lack of direct comparison between different anxiety disorders.

From a treatment perspective, there has been a significant amount of literature that has shown the utility of adjunct antipsychotics in treating OCD. We believe that this may also be related to the fact that OCD shares a lot of the underpinnings with schizophrenia. Future studies are required to directly compare patients with schizophrenia and obsessive compulsive disorder using neuroimaging and biological studies.

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