Editorial

Do we still need thoracic epidural analgesia in minimally invasive lung surgery?

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Homma and co-workers nicely describe how their department-wide transition from multi- to uniportal video-assisted thoracoscopic surgery (VATS) was associated with decreased complications and less neuropathic pain, while concomitantly observing that thoracic epidural analgesia (TEA) apparently provides no true benefits for pain-relief in minimally-invasive lung surgery when compared to isolated intercostal nerve blockade (1). Even though the overall better outcome in their uniportal group (blood loss 1 *vs.* 30 mL; P=0.0010, complications 23.9% *vs.* 40.9%; P=0.048 and postoperative neuropathic pain 32.4% *vs.* 52.1%; P=0.027) might be at least partially biased, as a single surgeon performed all uniportal cases while a number of different surgeons operated in multiportal fashion, the broader question of optimal, procedure-oriented pain-relief is raised.

The past few years brought us not just a delve of technical innovations, from VATS and robotic-assisted thoracoscopic surgery (RATS) segmentectomy for early lung cancer (2) to non-intubated major lung surgery (3), but generally led to more patient-centric delivery of medical care. ERAS (enhanced recovery after surgery) concepts gained major traction in thoracic surgery since *Tim Batchelor* first published a list of 45 items of evidence-based procedures to improve overall outcome of patients undergoing pulmonary resection (4). Pain-relief was one of the central topics that were addressed, stressing the importance of standardized multimodal approaches that should include a form of good regional anesthesia with the aim of reducing postoperative opioid use. Furthermore, he underlines that "paravertebral blockade provides equivalent analgesia to TEA with evidence of a better side-effect profile".

This is well in line with the results of a procedure-specific postoperative pain management (PROSPECT) based publication by members of the European Society of Regional Anesthesia & Pain Therapy (ESRA) (5). Herein, 69 randomized controlled trials and two reviews published in English Language between 2010–2021 were analyzed to determine optimal pain management in patients undergoing video-assisted thoracoscopic surgery. They conclude by recommending regional analgesic techniques such as paravertebral block and erector spinae plane block, while suggesting to use Serratus anterior plane block as a second choice and avoiding TEA altogether for postoperative analgesia. Key for this recommendation were a total of 7 studies investigating effectiveness of TEA in VATS. In one of these, Zejun and co-workers (6) demonstrated superior pain control for isolated TEA *vs.* PCA, while the same was not true if basic analgesia was accompanied by surgical intercostal nerve blockade (7) or in head-to-head comparisons of TEA and paravertebral blockade (8-10). A further meta-analysis suggested no true evidence to recommend either TEA or paravertebral blockade from a pure pain-control point of view (11), with the latter having a lower incidence of both urinary retention and hypotension. Diverging from earlier PROSPECT recommendations for post thoracotomy analgesia (12), at present TEA is not encouraged in VATS, even as a second-line option, due to its risks that may further impede early mobilization. This

is in line with a very recent publication by Yamazaki and co-workers, who describe how intraoperative intercostal nerve blockade performed by surgeons leads to pain relief equivalent with TEA in VATS (13).

Ideally, minimally-invasive surgery should not just consist of increasingly smaller and fewer incisions, but follow a more holistic approach to delivering medical care by reducing the overall trauma a patient faces during treatment. In the end, Homma *et al.* describe how the benefits of an increasingly smaller procedural trauma, by transitioning from multiportal to uniportal VATS, add up with the benefits of foregoing TEA altogether. As we dispose of very good alternatives to TEA that are less prone to complications, we should try to widely adopt either transcutaneous or intraoperative paravertebral blockade and/or erector spinae plane blocks into our daily routine, with the added benefit of shorter induction times.

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