

## Erector spinae plane block: RIP or VIP?

To the Editor

I read with interest the article by Lonnqvist *et al.*<sup>1</sup> Few years ago, I developed the concept of erector spinae plane (ESP) block and had the privilege to publish our experience as brief technical report in this journal with my esteemed colleagues KJ Chin and S Adhikary in 2016.<sup>2</sup> Since then, there was an outpouring interest in this block with 428 articles published up to this September 2020 from the PubMed search. With the rapid growth of literature, the evidence to support or refute this block will become more defined with time.

In this daring discourse, I understand that there is a lag period between the time of writing and publication. Yet, this will limit the bulk of literature on what the authors' opinion of this article based on.

In response to their skepticism on the analgesic effect of the ESP block over the anterior body trunk, I agree that we should examine the block not only from the placebo-controlled trials but also the comparative trials. The literature is clear, and there is robust evidence to support the superiority of ESP block over placebo.<sup>3</sup> The authors of the daring discourse quoted six comparative trials—four showed inferiority (compared with to thoracic epidural, to single shot thoracic paravertebral (TPVB) and pectoral nerve or (PEC block) and two non-inferiority (compared with intercostal nerve block and continuous TPVB). As a scientist, we all know that a selective inclusion of studies will introduce bias. A PubMed search showed 34 comparative randomized trials instead. Because of the restricted format of this letter, I cannot list all of them. Twenty-five are for thoracic and nine for abdominal surgery. There are eight randomized trials comparing ESP block with TPVB and only two suggested inferiority of ESP while all other showed non-inferiority of ESP. A recent meta-analysis evaluating ESP block, TPVB and PEC block in breast surgery showed that the analgesic efficacy of ESP block is inferior to PEC block but similar to TPVB, yet the incidence of

pneumothorax is 2.6% with TPVB but none in ESP and PEC block. Furthermore there are three studies comparing ESP block with serratus anterior plane block and all demonstrated superior analgesic efficacy of the ESP block for minimally invasive thoracic surgery. Finally, the authors of this paper stated that there are no randomized trials comparing ESP block with others regional blocks in open thoracic surgeries, but there are! It has been examined in open thoracotomy head to head against single-shot TPVB, demonstrating non-inferior analgesia. The ESP block has also been tested head-to-head twice against continuous thoracic epidural (one in cardiac sternotomy surgery and one in open esophageal surgery) demonstrating similar analgesia but significantly lower incidence of hypotension in the ESP group. One important point I would like to highlight is that we should respect the science and be familiar with the literature before writing a commentary on a regional block.

In response to their discussion on the mechanism of ESP block, we are aware that a thorough review of the mechanism of ESP block is coming out.<sup>4</sup> Of course, the authors in this daring discourse did not have a chance to read this before they submitted. However, in that review article, they included 18 cadaveric spread studies and 17 studies on human being including our recent investigation on the spread of the local anesthetic and correlated with the sensory testing and pain score in human beings.<sup>5</sup> This review concluded that the most probable primary mechanism is a direct effect of local anesthetic via physical spread to neural structures in the fascial plane deep to the erector spinae muscles and adjacent tissue compartments. They agreed with the authors of the daring discourse in that there is a consistent involvement of the dorsal rami and epidural spread is a much less commonly observed phenomenon. Yet, they asserted that the injectate spread to the ventral rami of spinal nerves led to the analgesia of the anterior body trunk, which is also supported by comparative clinical trials.

In summary, I respect science and agree to make a judgment of a regional block based on evidence.

Based on the outpouring interest (245 trials registered in clinicaltrials.gov) and the emerging supportive evidence on ESP block, we should call it VIP rather than RIP block.

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