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CORRESPONDENCE

In reply: Comments on: Mechanisms of action of the erector spinae plane (ESP) block: a narrative review (Letters #1 and #2)

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To the Editor,

We thank Dr. De Cassai and colleagues for highlighting these useful references in response to our paper,[1] and applaud them for their contribution to this topic.[2] The data make it clear that erector spinae plane (ESP) blocks produce plasma concentrations in the range similar to those of therapeutic intravenous lidocaine infusions, and that these can be sustained with continuous catheter infusions. Nevertheless, there are two additional questions to consider in judging if these plasma concentrations contribute to the observed clinical efficacy of ESP blocks, and to what degree.

The first is whether ropivacaine and bupivacaine, the local anesthetics most commonly used in ESP blocks, have the same systemic effects as lidocaine. This has not been directly studied because of the potential for cardiotoxicity with these agents. Laboratory studies indicate that they have similar interactions with ion channels and neurotransmitter receptors in peripheral and dorsal horn neurons, making it reasonable to expect that systemic analgesic effects will be comparable.

The second and more fundamental question is: how large and meaningful are the analgesic effects of intravenous lidocaine infusions? A 2018 Cochrane review reached a guarded conclusion, remarking that it is "*uncertain whether IV perioperative lidocaine, when compared to placebo or no treatment, has a beneficial impact on pain scores in the early postoperative phase, and on gastrointestinal recovery, postoperative nausea, and opioid consumption*".[3] A comprehensive review on the molecular mechanisms of action of systemic lidocaine also noted that many of these are only observed at concentrations that exceed those associated with therapeutic intravenous lidocaine infusions.[4]

Direct proof of the contribution of a systemic local anesthetic action to the clinical effects of ESP blocks is unfortunately likely to remain elusive; hence, for now, this remains a theory, albeit a plausible one. However, the uncertainty surrounding mechanisms of action should not dissuade clinicians from employing the ESP block as long as there continues to be clinical evidence for benefit.

We also wish to thank Dr. Costache for her clarification.[5] It was never our intention to imply primacy of innovation. The sentence in question was phrased to suggest that practitioners might obtain better anterior spread of injectate by sliding their needle tip off the transverse process and deeper into the intertransverse tissues—and to acknowledge that this would thus resemble the technique of the mid-point transverse process to pleura block, which has been shown to be highly effective in its own right.

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