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RESPONSE TO LETTER

Analgesic Quality Improvement in Paravertebral Blocks for Pediatric Nuss Procedure: An Exploratory Report on the Effects of Perineural Combined Glucocorticoids [Response to Letter]

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Dear editor

We appreciate the opportunity to respond to Dr Zi-heng Li's thoughtful suggestions regarding our recent published study, "Analgesic Quality Improvement in Paravertebral Blocks for Pediatric Nuss Procedure: An Exploratory Report on the Effects of Perineural Combined Glucocorticoids".[1,2] Dr Zi-heng li comments on several areas of limitations, some of which we can improve with further investigation and change in study design.

As mentioned by the respondent, retrospective study design has its limitations and is generally considered inferior to prospective randomized study. In our discussion, we examined the retrospective nature of our study and raised similar concerns as by Dr Zi-heng li. We considered that clinical use of opioid has changed drastically in the past decade due to increasing awareness of opioid overuse and its harmful effects. The Nuss procedure is not a common procedure performed at our institution. We only have one surgeon who conducts the Nuss procedure steadily over the years. To be efficient with data collection and to improve our sample size, we elected to conduct a retrospective study looking at cases from 2013 to 2021. We hope that we will have the opportunity to collaborate with other large tertiary medical centers both nationally and internationally to conduct a randomized trial regarding the use of glucocorticoid in paravertebral nerve blocks (PVB) for pediatric Nuss procedures.

We also acknowledged in our discussion that the addition of erector spinae plane blocks (ESPB), in 8 out of 44 patients, could be a confounding factor when evaluating the analgesic benefits of the glucocorticoid incorporated in the blocks. We did not separately compare the pain score or opioid requirements of these eight patients who received both blocks to those who received PVB only. This assessment can be done and potentially offer additional insights into our study. ESPB was first described by Forero et al in 2016,[3] and since then, it has become well studied and practiced in its application in thoracic pain relief. Given the later development of ESPB, just like the perception of opioid, the incorporation of ESPB in a retrospective study is bound to be associated with temporal confounders. Nonetheless, theoretically speaking this would only make a difference in failed PVBS as ESPB is typically performed distal to and considered weaker than PVB. Again, in collaboration with other large centers who conduct the Nuss procedure, we hope to analyze the use of glucocorticoid in PVB vs ESPB vs PVB and ESP in a prospective fashion.

Lastly, we apologize for a lack of clarity about our study protocol with regard to local anesthetic doses. Patients in both groups received the same local anesthetic at the same rate (0.2% ropivacaine at 5 mL/hr). There was no variation between the groups in this regard. However, patients did receive additional as-needed boluses of 5 mL of 0.2% ropivacaine. Based on the limitations of the medical record, we could not look back to see if there was variation between the groups based on the number of bolus doses they received.

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In summary, we appreciate the letter's noting of the retrospective study design. We agree that based on these retrospective results alone it is difficult to readily apply our results directly to patient care. We agree that further larger studies are needed before its implementation on a wide scale. We look forward to collaborating researchers in other centers with similar interests to conduct a prospective study.

Disclosure

The authors report no conflicts of interest in this communication.

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