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Perioperative analgesia research in pediatric open-heart surgery: devil is in the details


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We read with great interest the recent original article by Abdelbaser et al outlining the efficacy of bilateral thoracic retrolaminar block (TRLB) in providing perioperative analgesia in pediatric open-heart surgery [1]. The authors are congratulated for their novel research endeavor employing a meticulous randomized double-blinded approach with the blocks being administered after anesthesia induction in the study and control group with the local anesthetic and saline, respectively (both groups undergoing surgical interventions of a comparable duration of around 3h) [1]. Nonetheless, the index study findings need to be cautiously interpreted in background of the following observations.

The authors discover significant statistical differences between the TRLB (n=29) and the control (n=28) groups with regards to the 24h post-extubation fentanyl consumption and postoperative modified objective pain scores (MOPS) measured at 0,2,4,8,12 and 16 hours post-extubation [1]. More importantly, the median time-to-extubation was additionally significantly less in the TRLB group (2h; interquartile range: 1-3h) in contrast to the control group (6h; interquartile range: 4.5-6h) [1]. Interestingly, the significantly lower time-to-extubation in the TRLB group would have in turn compounded a sound comparison of the postoperative MOPS between the two groups. Apparently being contemplated at strictly referenced time-points “post-extubation” [1], the MOPS evaluation time-points would have in all practicality, been quite variably stationed from the actual time of the single-shot administration of blocks in the two groups. For instance, using the quoted figures from Abdelbaser et al study, a patient in TRLB group was likely to be first assessed for MOPS-0 after 4-6h following the
block administration as opposed to the much longer MOPS-0 evaluation time-point of approximately 7.5-9h in the control group [1].

Drawing on our research experiences also, we acknowledge the practicalities surrounding postoperative MOPS assessment [2]. With that said, any perioperative analgesia research studying inter-dependent objectives needs to closely account for inconsistencies emanating from the former. In this context, it could have been more meaningful to evaluate the time to first postoperative rescue analgesia requirement from the intensive care unit admission rather than highlighting exorbitant duration differences while again measuring this parameter “post-extubation”, as was the case in the Abdelbaser et al study [1]. Needless to say, the aforementioned can result in the misinterpretation of the “true” analgesic potential of the upcoming novel modalities, particularly relevant for small sample size studies [3,4].

At the same time, it cannot be undermined that the Abdelbaser et al elucidation of the role of TRLB in reducing the intraoperative fentanyl requirement, is noteworthy and resonates well with the paradigm shift towards an opioid-sparing cardiac anesthesia [5]. However, we are equally intrigued with respect to the analgesic management on cardiopulmonary bypass in their study as they suffice to discuss the indications of intraoperative fentanyl as: prophylactic doses prior to skin-incision and sternotomy and, supplemental doses on ≥ 20% increase in the mean arterial blood pressure and/or heart rate above the baseline [1].
References


