

Reflections on: “Pectointercostal fascial block on stress response in open heart surgery”

Dear Editor,

I read with immense interest the research article that evaluated the impact of the pectointercostal fascial block (PIFB, i.e., superficial parasternal block) on stress response to open heart surgeries performed through a sternotomy incision.^[1] I sincerely congratulate the authors for this excellent study with impeccable methodology and wish to provide my reflections on this interesting topic.

I appreciate the efforts of Fadhlurrahman *et al.*^[1] for focusing on the stress response in this population besides the routinely assessed parameters such as pain scores, opioid consumption, etc. Nevertheless, we need to consider a few points, especially about a previously published study by Zhang *et al.*^[2] and the biomarkers applied in this study.^[1]

Zhang *et al.*^[2] also studied the effects of PIFB on the stress response to open cardiac surgeries. However, they assessed the insulin, insulin resistance, glucose, and interleukin (IL)-6 levels at one, two, and three days after surgery for this purpose. They observed “insulin resistance” in the control group and stated that this might have resulted in the elevated IL-6 levels. However, I was not sure about this, especially for acute conditions.^[3] Similarly, I am not sure whether tumor necrosis factor (TNF)-alpha and adrenocorticotrophic hormone (ACTH) are the ideal markers for the stress response. The clinical adverse effects such as mediastinal bleeding and “prolonged intubation time” were remarkable only if TNF-alpha levels were more than 20 pg/mL.^[4] Additionally, because of the possibility of a fall in the ACTH to basal level at some point (cortisol remains elevated) and the “markedly increased sensitivity of the adrenal gland to ACTH being at around 8 hours after surgery,”^[5] the estimation of ACTH at 10 minutes after sternotomy in this study,^[1] is questionable.

Thus, the conclusion that “PIFB has a good role in reducing the stress response of open heart surgery”^[1] needs careful interpretation. First, the biomarkers of the stress response were statistically insignificant between the groups.^[1] Second, although the change in TNF-alpha level was lower in the PIFB group, the values were lower than 20 pg/mL (the cut-off value observed in a previous study^[4]) in any of the patients in this study, besides the concerns raised for ACTH in the previous

paragraph as per another study.^[5] Hence, I still believe that serial measurements of cortisol in the first 24 or 48 hours would be a better marker, as its levels are elevated constantly until such time.^[5,6] It is fascinating to note that this was observed way back in 1976.^[6]

Another limitation of this study is the inclusion of varieties of open heart surgeries,^[1] unlike the homogenous population of valve replacement surgeries in that study by Zhang *et al.*^[2] Although the duration of surgery and cardiopulmonary bypass time did not differ significantly between the two groups,^[1] it would have been better if a particular type of surgery was chosen. Also, the dose of preoperative fentanyl could have been a standard one instead of a range of 2–3 mcg/kg.^[1]

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Conflicts of interest

There are no conflicts of interest to declare.

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