

## Fascial plane blocks: Will they flourish or perish with time?

The speed at which fascial plane blocks (FPBs) became popular and the rate at which we adopted them into our clinical practice that too in the era of evidence-based medicine is astonishing. Although performing FPBs has now become a norm, there remains uncertainty about their exact mechanism of action and proficiency in blocking both the somatic and visceral pain.<sup>[1,2]</sup>

Many of the FPBs are now considered as effective alternatives to gold standard methods, despite the lack of robust randomized clinical trials (RCTs) proving their efficiency over the time tested and proven techniques like the neuraxial blocks.<sup>[3]</sup> For instance, in many of the RCTs involving surgeries of the chest wall, FPBs were commonly compared with the paravertebral block rather than with the epidural analgesia.<sup>[4]</sup> Similarly, there are many RCTs published wherein the investigators compared two different FPBs with each other without having the third group allocated to receive either the gold standard intervention or placebo therapy (control group) and found no superiority of any one FPB over the other.<sup>[5,6]</sup>

Few of the FPBs described in the literature are aimed at blocking the same nerve at different points. For instance, the primary aim of the erector spinae plane (ESP) block, mid-point transverse process to pleura (MTP) block, and the retrolaminar block is to involve the ventral ramus traversing through the paravertebral space, but the point of injection of all these blocks is away from the target site. To achieve the desired clinical effect, FPBs are proposed as volume-based blocks, wherein a large volume of diluted concentrations of local anesthetic (LA) solution is injected with the hope that the LA solution will diffuse through different layers of muscles and connective tissue to reach the effect site (anatomical theory).<sup>[7,8]</sup> However, neither the volume nor the time LA would take to reach the target site is in our hands. Moreover, there is always going to be some absorption of LA solution into the systemic circulation, which itself can contribute to the analgesic effect (vascular theory).<sup>[9]</sup> The relative contribution of local versus systemic effects remains unclear. This means, that no matter where we inject LA in the body, there is always going to be some analgesic effect observed secondary to vascular absorption and systemic effect.

Secondly, the site of injection of a few of the FPBs is so close to each other that they almost overlap, raising the question of whether they are actually two different blocks or

described just for the sake of publication. For instance, there is hardly any distance between the points of injection of the posterior transversus abdominis plane (TAP) block and the lateral quadratus lumborum (QL) block. Hence, in a recent Delphi consensus, El-Boghdady K *et al.*<sup>[10]</sup> recommended to standardize the nomenclature of FPBs, and there was strong agreement to either merge or rename a few of the FPBs for uniformity. This includes merging the lateral QL block with the posterior TAP block and to be renamed as a lateral QL block only. Moreover, several variants of FPBs are described by depositing the LA solution either above or below the muscle and termed them as superficial and deep blocks, respectively, such as serratus anterior plane (SAP) block and parasternal block, with no clinical advantage of one over the other.<sup>[11-13]</sup>

While most FPBs primarily offer relief from somatic pain, literature is filled with RCTs evaluating their analgesic effectiveness in surgeries primarily having visceral pain.<sup>[14-17]</sup> This is like using a cannon to kill a mosquito. For instance, a QL block was performed to provide pain relief following laparoscopic cholecystectomy and a TAP block for laparoscopic nephrectomy.<sup>[16,17]</sup> A valid question posed by such studies is whether it is justified to perform such deeper levels of blocks, which warrant expert needling skills and are often associated with significant complications, to be performed in minimally invasive surgeries having significant visceral component of pain, where multimodal analgesia with LA infiltration of port site would normally suffice. In a recently published meta-analysis, Viderman D *et al.*<sup>[18]</sup> assessed the effectiveness of ESP block with standard medical care (no block) for pain relief following major abdominal surgeries and found decreased postoperative opioid requirements in the ESP block group. However, after pooling the results, they found no significant difference in the pain scores between the two groups. Similarly, in a narrative review by Jones JH *et al.*<sup>[19]</sup> in the setting of laparoscopic surgery, performing FPBs did not provide any clinically meaningful benefits over multimodal analgesia or intravenous lignocaine. Hence, none of the described FPBs is good enough to provide complete anesthesia. They are at best to be used as part of multimodal analgesia, raising serious question about their efficacy.

The primary reasons for the widespread adoption of many of the FPBs is due to their ease of execution, established safety profile, compatibility with catheter insertion, widespread use of ultrasound, and the rapid dissemination of information through social media, but above all, the itch to do something new and to get publication credits. An advanced PubMed search (using the keywords TAP, Paravertebral, ESP, QL, Serratus anterior, Pectoralis, Rhomboid intercostal OR

Parasternal) showed 139,278 results, out of which majority of the studies were comparing one type of FPB with the other. However, we all have witnessed the rise and fall in the popularity of TAP block within a span of two decades.<sup>[20]</sup> It remains to be seen how many additional FPBs will be introduced in the near future, which all will retain their clinical relevance, and how many will elope and will be remembered as rest in peace (RIP) blocks.<sup>[21]</sup> Hence, the future will only judge and decide whether we were right or wrong in welcoming a plethora of these FPBs into the armamentarium of regional anesthesia with both arms opened.

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