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Miracle twins: erector spinae plane block and quadratus lumborum block, what can we learn from their comparison

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To the Editor,

We read with great interest the article by S. Coppens et al., in which they expressed their concerns and highlighted areas for further research regarding the obscure aspects of the controversial Erector Spinae Plane Block (ESPB), particularly its mechanism of action and the actual amount of local anesthetic reaching the paravertebral space [1]. We believe that these reflections can be explored and further integrated, especially by comparing them with other fascial plane blocks, particularly within the wide family of Quadratus Lumborum Blocks (QLB). In recent years, these techniques have experienced significant success, with a progressive increase in their application in various surgical branches, as evidenced by the proliferation of new techniques and studies in this area. The main driving forces behind this innovation have been the technical improvements and increased availability of ultrasound probes, as well as the refinement of minimally invasive, laparoscopic, and robotic surgical techniques, which have gradually replaced neuro-axial loco-regional techniques. Recently, attention has been more focused on blocks capable of involving visceral sensitivity through

(albeit controversial) local anesthetic diffusion to the paravertebral space, including the aforementioned ESPB and the QLB in its various forms and approaches [1] (Fig. 1). Both of these blocks have been proposed for intra and postoperative analgesia in numerous abdominal and non-abdominal surgeries, but only recently have they been compared to demonstrate the potential superiority of one technique over the other. The idea of comparing these blocks becomes noticeable when observing the proximity of the injection site in the ESPB, which occurs at the level of the transverse process below the erector spinae muscle, and the QLB, particularly in its posterior variant (previously known as QLB2), where the local anesthetic is injected between the quadratus lumborum and erector spinae muscles. Moreover, anatomical studies on cadavers comparing the distribution of local anesthetic in both blocks have shown comparable results between low-thoracic ESPB and posteromedial QLB, particularly indicating minimal and unreliable paravertebral space diffusion in both blocks, with the QLB's cranial extension likely limited by the lumbocostal ligament [2].

Reviewing the literature where the two blocks are compared in numerous surgeries, such as hepatic resection, cholecystectomy, nephrectomy, and cesarean section, it becomes immediately apparent that both techniques exhibit equivalent analgesic efficacy and comparable opioid-sparing effects [3–6].

We, therefore, believe that in order to gain a deeper understanding of these two blocks, to explore whether one strategy is superior to the other, or to identify which surgeries they are most suitable for, several other fronts for future research should be pursued. For example, a point that has been largely overlooked in all

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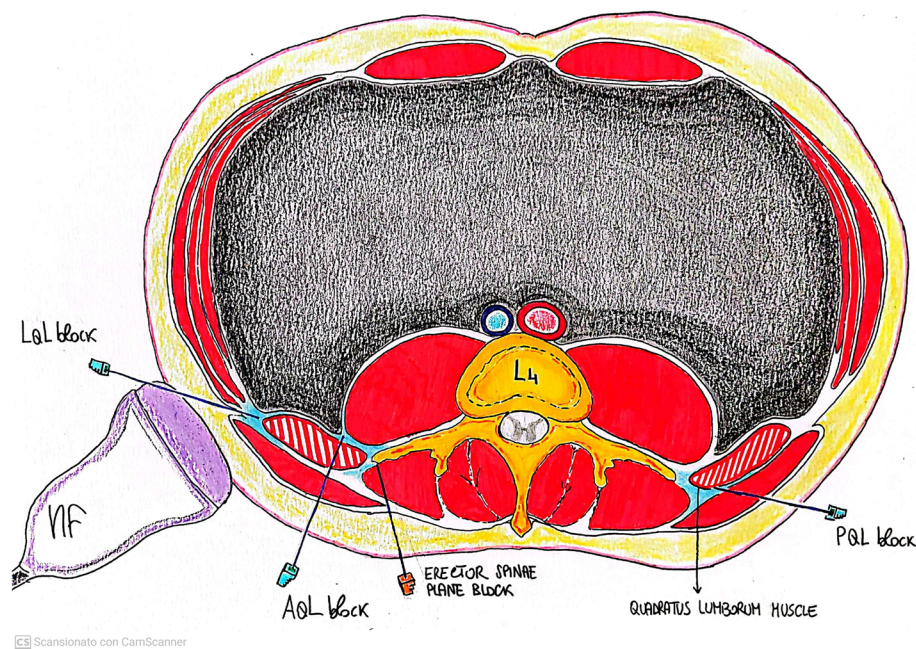


Fig. 1 Anatomical section: representation of Erector Spinae Plane Block and Quadratus Lumborum Blocks

previous studies is the timing and execution method of the blocks, which vary significantly based on the experimenter's habits. Regarding timing, based on our experience with the application of these techniques at our center, we find it more appropriate to perform them at the end of General Anesthesia induction to improve patient compliance and comfort. Additionally, standardizing this approach could help overcome any potential placebo effect resulting from performing the block while the patient is awake. However, first it would be necessary to confirm that this positioning does not influence the distribution of local anesthetic (given the lack of CT and MRI studies performed in a position other than supine). As for the execution method, while the posterior QLB can be performed relatively easily in the supine position (possibly with the aid of a wedge or cushion under the patient's hip to optimize ultrasound visualization in cases of more complex anatomies [3]), the ESPB necessarily requires the lateral decubitus position, leading to a significant increase in execution time and personnel required. Considering that there is currently no consensus on the required concentrations and volumes of local anesthetic, another point that requires further attention in the post-operative phase is the assessment of the extent of cutaneous coverage provided by the two blocks and their duration at different volumes and concentrations. Lastly, future adequately sized randomized controlled trials are needed to evaluate and compare the real incidence of side effects, such

as hypotension and weakness in the lower limbs, associated with these blocks.

In conclusion, the reflections expressed by Coppens et al. regarding the ESPB are largely applicable to the QLB, particularly in its posterior variant, but there are still numerous points that need to be explored for both these blocks, particularly in the context of comparing their applicability and indications. Nevertheless, we believe that their similarities could serve as a starting point to better understand the still mysterious mechanism of action behind these two highly successful blocks.

Abbreviations

CT	Computed tomography
ESPB	Erector Spinae Plane Block
MRI	Magnetic resonance imaging
QLB	Quadratus Lumborum Blocks

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Authors' contributions

Study conception and design: L. Bagnoli, N. Fabbri; data collection: L. Bagnoli, N. Fabbri; analysis and interpretation of results: L. Bagnoli, N. Fabbri, M. Ventura, A De Nardus; draft manuscript preparation: L. Bagnoli, N. Fabbri, S. Greco, E. Righini. All authors reviewed the results and approved the final version of the manuscript.

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