

Trends in regional anaesthesia: insights from *Anaesthesiology Intensive Therapy*

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Regional anaesthesia has moved from the margins of perioperative care to a central position in many pathways. In an increasing number of procedures, contemporary, procedure-specific guidelines now recommend neuraxial or peripheral nerve blocks as core elements of multimodal analgesia, so in many centres these techniques are moving from optional adjuncts towards an expected part of standard care, along with a parallel shift in patients' expectations [1–4].

The question is now increasingly less about whether to use regional anaesthesia and more about how to select and deliver specific techniques that align with these recommendations and local resource constraints. Some of the studies published in *Anaesthesiology Intensive Therapy* (AIT) address the practical aspects of care while going beyond simply demonstrating that regional blocks work. Instead, they explore how block choice can preserve motor function, how outcomes can be framed in terms of recovery and longer-term wellbeing, and how questions of volume, technique and safety are addressed in everyday practice. The resulting picture is not of a single pivotal trial, but of a set of pragmatic contributions that, together with larger RCTs, meta-analyses and guidelines, help shape future standards of care.

MOVING TO THE PERIPHERY AND RESERVING FUNCTION WHILE PROVIDING ANALGESIA

A recurring concern in regional anaesthesia is the balance between analgesia and preservation of function. For shoulder and upper-arm surgery, Sinha *et al.* [5] compared an ultrasound-guided superior trunk block with a conventional interscalene block in patients undergoing proximal humerus proce-

dures. Analgesic efficacy and opioid consumption were broadly similar, but the superior trunk block preserved diaphragmatic function far better than the interscalene approach. By targeting the C5–C6 trunk rather than the more proximal roots, the technique reduced phrenic nerve involvement while maintaining satisfactory shoulder analgesia.

A notable example of a trial comparing a central and peripheral (albeit complex) block was reported by Singh *et al.* [6], who, in adult unilateral inguinal hernia surgery, found that an ultrasound-guided triple ilioinguinal–iliohypogastric–genitofemoral nerve block, used as the sole anaesthetic technique, provided lower early postoperative pain scores, required no rescue opioids in the early period, and was associated with earlier first mobilisation, earlier first micturition and earlier discharge from the recovery room compared with unilateral spinal anaesthesia.

For hip surgery, Refaat *et al.* [7] contrasted supra-inguinal fascia iliaca block with anterior quadratus lumborum block in patients undergoing hip fracture surgery under spinal anaesthesia. The fascia iliaca block provided longer postoperative analgesia, reduced 24-hour opioid requirements and improved comfort during positioning for spinal anaesthesia. The more joint-oriented, lateral block outperformed a posterior trunk technique, supporting the idea that blocks which directly address the articular branches of the femoral and obturator nerves may be more practical and effective than broader thoracolumbar approaches in this population. For thoracic surgery, Díaz-Bohada *et al.* [8] reported a pilot observational study of erector spinae plane (ESP) blocks as the main regional technique for video-assisted thoracoscopic (VATS) procedures. ESP provided acceptable acute pain control with modest

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opioid requirements and a low incidence of neuropathic-type pain at three months.

A comparison by Hanych *et al.* [9], a small prospective pilot study of patients undergoing hip replacement, compared continuous lumbar erector spinae plane block with epidural analgesia. This serves as a further example of the trend toward studying analgesic equivalence of less invasive (and safer) techniques.

In breast surgery, Alshawadfy *et al.* [10] compared pectoral nerve block (PECS) II and serratus anterior plane (SAP) blocks for modified radical mastectomy. Both techniques yielded good analgesia, but the SAP block was associated with lower early pain scores and less opioid use. This kind of granular, head-to-head comparison between two essentially peripheral techniques illustrates an important trend: once regional anaesthesia becomes part of routine care, the real question is simply which of the blocks works best in the specific context.

Across these trials, the direction is consistent: clinicians and researchers are moving towards interfascial and peripheral techniques that provide effective pain relief while limiting unwanted motor or respiratory impairment.

OUTCOMES BEYOND THE FIRST 24 HOURS

Several of the AIT papers deliberately look beyond immediate postoperative pain scores. In the mentioned pilot study, Hanych *et al.* [9] showed that while epidural analgesia reduced opioid consumption to a greater degree, pain scores, ability to sit and stand on the first postoperative day, and Quality of Recovery-40 scores were similar between groups. ESP offered a simpler, unilateral technique that avoided neuraxial catheterisation while still supporting early mobilisation and acceptable global recovery.

Díaz-Bohada *et al.* [8] followed their VATS cohort for three months, capturing neuropathic pain symptoms and health-related quality of life. In this small series, chronic neuropathic pain was uncommon, and most patients reported satisfactory quality-of-life indices. While this study lacked a control group, which precludes conclusions about causality, the data suggested that an ESP-based regimen does not increase the risk of persistent pain and may be compatible with good medium-term outcomes.

Abdominal wall surgery provides another example. Elshalakany *et al.* [11] studied a transversus abdominis plane block for unilateral inguinal hernia repair, with or without the addition of buprenorphine. Buprenorphine almost doubled the duration of analgesia and reduced early pain and wound hyperalgesia, yet the incidence of chronic pain at three months remained low and similar in both groups. That finding is a reminder that while adjuvants can

significantly improve acute analgesia, chronic post-surgical pain is multifactorial and unlikely to be substantially altered by a single intervention.

TECHNIQUE, DOSE AND SAFETY

Other contributions focus less on which block to choose and more on how to perform it. Abdelhamid *et al.* [12] compared two volumes of local anaesthetic for a modified thoracolumbar interfascial plane block in lumbar spine surgery. They found prolonged analgesia and improved pain scores, with non-significantly ($P = 0.056$) lower opioid use, in the 20 mL group compared to the 10 mL group.

Safety is also addressed from a legal perspective. Samara *et al.* [13] analysed 25 years of Greek court decisions involving regional anaesthesia. Most cases related to neuraxial techniques and serious neurological complications. Recurrent issues included delayed recognition of epidural haematoma, incomplete documentation of risk and ambiguity in assigning responsibility within multidisciplinary teams. The authors underscore that, as regional techniques proliferate, careful patient selection, timely response to warning signs and meticulous documentation are as important as technical proficiency.

WHAT DOES IT LOOK LIKE IN DAILY PRACTICE?

The two survey-based studies by Pabjańczyk *et al.* [14, 15] offer a national (Polish) snapshot of perioperative care in total hip and knee arthroplasty. Part I, focused on preoperative management, identified multimodal analgesia, regional techniques and early upright positioning as key evidence-based elements of care, but also revealed substantial overuse of laboratory tests and specialist consultations, and heterogeneous pathway implementation [14].

Part II, published this year, concentrated on anaesthetic practice. It showed that subarachnoid block remains the dominant technique for both procedures, that peripheral nerve blocks are commonly used in total knee arthroplasty but less so in total hip arthroplasty, and that postoperative analgesia still relies heavily on systemic opioids [15]. The authors explicitly called for broader and more consistent use of regional techniques and for a reduction in opioid exposure, in line with guideline recommendations.

These survey findings frame the single-centre trials in a broader context: they suggest that, while high-quality regional techniques are available and well described, their routine implementation remains uneven.

CONCLUSIONS

All in all, these papers form a small but meaningful part of the wider evidence base underpin-

ning guideline-driven perioperative care. They show how particular blocks can be integrated into corresponding procedures, and provide granular data on motor preservation, recovery-oriented outcomes, dosing and safety that complement larger, multicentre trials and international recommendations. In that sense, the studies discussed here support the shift outlined at the start of this article: as regional anaesthesia moves from an “optional add-on” to routine perioperative care, the key question becomes not whether to use it, but how to choose, tailor and deliver it safely and consistently in everyday practice.

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