Reply to Tognù *et al*: regional anesthesia for proximal humerus surgery during COVID-19 pandemic

To the Editor

We read the letter entitled 'Proximal humeral fracture surgery in the COVID-19 pandemic: advocacy for regional anesthesia' with great interest.[1] We agree with the authors on using regional anesthesia (RA) in trauma patients whenever applicable during this pandemic. However, it should also be considered that an unplanned need for intraoperative conversion to general anesthesia (GA) is least desirable in patients with COVID-19.[2]

The application of RA for surgical anesthesia needs thorough understanding of the dermatome, myotome and osteotome of the surgical field. The authors proposed a combination of ultrasound-guided interscalene block (ISB) and supraclavicular brachial plexus block (SCB) for proximal humeral surgeries as stand-alone RA technique. Falyar *et al* used this combination for intramedullary nailing of a pathologic humeral fracture.[3] We have been using this combination for surgeries involving proximal and shaft of humerus with good surgical anesthesia and patient satisfaction. To be precise, we use combination of upper trunk block and subclavian perivascular brachial plexus block. However, these combinations are always not enough to cover the surgical incision.

A detailed knowledge of innervations around shoulder is important to choose appropriate RA technique, prevent failure and avoid conversion to GA. Axillary nerve (C5–C6) and suprascapular nerve (C5–C6) supply major part of the osteotome and myotome around the shoulder and proximal humerus. Subscapular (C5–C6), medial pectoral (C8-T1), lateral pectoral (C5–C7), musculocutaneous (C5–C7), thoracodorsal (C6–C8) and radial nerves (C5–T1) also contribute to supply myotomes. The dermatome is supplied by axillary, supraclavicular (C3–C4), anterior cutaneous branches of intercostal nerves (T2–T4) and radial nerve. ISB typically covers only C5–C6. Combining SCB with ISB results in anesthesia and analgesia of C5–T1 dermatomes. Additional subcutaneous local anesthetic (LA) infiltration along the incision line or superficial cervical plexus block and/or intercostobrachial nerve block may be required depending upon the type of surgery and site of incision.

Ultrasound-guided low volume ISB or upper trunk block helps to decrease incidence of phrenic nerve palsy and other complications which are particularly important in patients with compromised lung function.[4] Combining low volume ISB and SCB can still increase the possibility of transient phrenic nerve palsy due to increase cumulative LA volume. Alternative approaches like combined infraclavicular brachial plexus block with suprascapular nerve block can be tried in high-risk patients.[5] LA systemic toxicity (LAST) is another concern whenever we use multiple blocks. Appropriate measures must be taken as per the recommendations to prevent LAST during covid-19 pandemic.

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