

LETTER

Proximal humeral fracture surgery in the COVID-19 pandemic: advocacy for regional anesthesia

To the Editor

On 23 April 2020, the National Health Institute reported 177 143 confirmed cases and more than 23 188 confirmed COVID-19 deaths affecting Italy. Approximately 19 628 health workers became infected during the execution of their duties, and among them, 69 clinicians died.¹

The odds of transmission of acute respiratory infection to a healthcare professional is known to be 6.6 times when exposed to tracheal intubation.²

Hence, regional anesthesia (RA) as sole technique may be preferred for providing anesthesia care wherever possible in trauma patients with suspected COVID-19 infection. Besides decreasing the need for airway manipulation, RA may lower the risk of postoperative complications and reduces the length of stay in the overloaded post anesthesia care unit (PACU) and critical care units.³

Proximal humeral fracture (PHF) is a frequent occurrence in elderly patients, accounting for about 10% of all fractures in this age group.⁴ PHF requires emergent surgery regardless of their non-fasted state or health status and presents a unique challenge to anesthesia providers as no single brachial plexus block will likely be adequate for surgical anesthesia. Although the interscalene (IS) block is the preferred technique for surgeries involving the shoulder and the upper arm, this block commonly misses the C8–T1 roots (lower trunk), resulting in

dermatomal sparing of parts of the arm. A supraclavicular (SC) block can provide entire upper extremity anesthesia distal to the shoulder but will likely miss the axillary nerve, which is a key component of shoulder innervation.

Following the COVID-19 outbreak in the north of Italy, we now routinely combine ultrasound-guided IS and separate SC block (IS-SC block) (whenever possible) to allow PHF surgery to be performed entirely under RA (with patient approval) in positive, or suspected to be positive, patients. We typically use 30 mL of a 1:1 mix of 2% mepivacaine and 0.5% levobupivacaine to complete both blocks. Our experience in 12 patients who underwent open reduction and internal fixation or shoulder arthroplasty (hemi- or reverse) suggests that surgical anesthesia can be achieved, and optional light sedation (midazolam 0.01–0.03 mg/kg and/or fentanyl 0.25–1.0 µg/kg) is administered at the discretion of the attending anesthesiologist.

We believe an IS-SC block can represent a valid alternative to general anesthesia in the management of anesthesia and analgesia for upper limb surgery involving C5–T1 dermatomes. This becomes particularly important for fragile patients in the context of ongoing respiratory infection and for the healthcare team, which is less exposed to risk of transmission of COVID-19, especially in case of shortages or rationing of personal protective equipment.

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REFERENCES

- 1 Epidemia COVID-19. Available: www.epicentro.iss.it/coronavirus/bollettino/Bollettino-sorveglianza-integrata-COVID-19_23-aprile-2020.pdf
- 2 Tran K, Cimon K, Severn M, et al. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. *PLoS One* 2012;7:e35797.
- 3 Warren J, Sundaram K, Anis H, et al. Spinal anesthesia is associated with decreased complications after total knee and hip arthroplasty. *J Am Acad Orthop Surg* 2020;28:e213–21.
- 4 Lanting B, MacDermid J, Drosdowech D, et al. Proximal humeral fractures: a systematic review of treatment modalities. *J Shoulder Elbow Surg* 2008;17:42–54.