

# Nerve blocks and pain management in the Intensive Care Unit: the challenge continues

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Dear Editor,

Continuous peripheral nerve blocks (CPNBs) are used to prolong analgesia obtained with locoregional anesthesia techniques and provide longer-lasting analgesia after major surgical treatment by allowing better postoperative pain control and preventing pain chronicization, reducing opioid use and related side effects, reducing hospital stay, and facilitating rehabilitation.<sup>1,2</sup>

A valuable field of application of CPNBs may be amputation surgeries and in the prevention of phantom limb pain (PLP).

PLP is a complex condition due to maladaptive brain reorganization that occurs following amputation of a limb. This clinical picture is characterized by two main components – pain and phantom limb sensation. Managing related symptoms is a complex,

multidisciplinary clinical challenge where effective pain control is hard to attain.<sup>3</sup> Therefore, preventing this pathological condition assumes particular importance. PLP remains a very common component; indeed, up to 80% of amputee patients report experiencing these symptoms, and it continues to pose a challenge in intensive care patients.

We describe the case of an 83-year-old male with a history of ischemic heart disease treated with percutaneous coronary intervention (PCI)-stenting, hypertension, and chronic renal failure. The patient presented to the emergency department following a demolition injury to the left upper extremity caused by a tiller. Examination revealed extensive damage to the vascular, nervous, and musculo-tendinous structures of the forearm, complicated by hemorrhagic shock. He was therefore rushed to the operating room for humero-radial bypass using a cephalic vein graft, surgical debridement of the site, and partial skin closure.

At the end of the procedure, the patient was transferred to the Intensive Care Unit (ICU) for continued care. On postoperative day 2, the patient developed bleeding from the surgical site due to partial injury of the packed bypass. The patient was taken back to the operating room for suturing. On postoperative day 5, a new vascular injury was evident, for which amputation surgery was necessary. As a result of the trauma, the patient also developed crash syndrome with acute liver and kidney failure, which made postoperative pain management and prevention of phantom limb syndrome particularly complex.

Therefore, it was decided to perform a supraclavicular brachial plexus block in asepsis and ultrasound guided with a high-frequency linear probe and in-plane technique. Ropivacaine 0.5% 20 mL was administered, and then a perineural catheter was placed for continuous infusion of ropivacaine 0.375% at a rate of 5 mL/h.

Over the next few days, the patient remained sedated and intubated to treat acute renal failure without showing signs of systemic local anesthetic toxicity. While the perineural catheter was in place, the patient never experienced any painful symptoms, and no opioids or non-steroidal anti-inflammatory drugs were required. The catheter was removed on day 4 after the amputation surgery, and the patient did not develop PLP.

In conclusion, the authors believe that CPNBs are extremely useful in the prevention of PLP. The importance of locoregional anesthesia techniques in the management of postoperative pain is reaffirmed by their ability to reduce the use of opioids and sedatives and associated side effects.<sup>4,5</sup> This is particularly relevant during painful procedures such as nursing care and mobilization, and in the prevention of chronic pain. These techniques remain marginal in the ICU, where pain management is often overlooked.

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