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Review



Anatomy of the brachial plexus and its implications for daily clinical practice: regional anesthesia is applied anatomy

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Abstract

Safety and effectiveness are mandatory requirements for any technique of regional anesthesia and can only be met by clinicians who appropriately understand all relevant anatomical details. Anatomical texts written for anesthesiologists may oversimplify the facts, presumably in an effort to reconcile extreme complexity with a need to educate as many users as possible. When it comes to techniques as common as upper-extremity blocks, the need for customized anatomical literature is even greater, particularly because the complex anatomy of the brachial plexus has never been described for anesthesiologists with a focus placed on regional anesthesia. The authors have undertaken to close this gap by compiling a structured overview that is clinically oriented and tailored to the needs of regional anesthesia. They describe the anatomy of the brachial plexus (ventral rami, trunks, divisions, cords, and nerves) in relation to the topographical regions used for access (interscalene gap, posterior triangle of the neck, infraclavicular fossa, and axillary fossa) and discuss the (interscalene, supraclavicular, infraclavicular, and axillary) block procedures associated with these access regions. They indicate allowances to be made for anatomical variations and the topography of fascial anatomy, give recommendations for ultrasound imaging and needle guidance, and explain the risks of excessive volumes and misdirected spreading of local anesthetics in various anatomical contexts. It is hoped that clinicians will find this article to be a useful reference for decision-making, enabling them to select the most appropriate regional anesthetic technique in any given situation, and to correctly judge the risks involved, whenever they prepare patients for a specific upper-limb surgical procedure.

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Footnotes

Correction notice: This article has been corrected since it published Online First. Figure 5 has been amended and the figure legend abbreviations updated.

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