Ehlers-Danlos Patient with History of Local Anesthesia Resistance

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Ehlers-Danlos syndrome (EDS) is the most common inherited disorder of connective tissue, which primarily affects the collagen. Patients with EDS have reported ineffective results of local anesthetics (LAs) associated with surgery and dental procedures. A 54 years old female with EDS presented to the emergency department with a horse bite to her upper arm for treatment. The patient states LAs are useless with failed dental blocks and three prior emergency room visits with failure of digital block and local infiltration for laceration repairs. The patient is requesting general anesthesia for irrigation, debridement, and repair of her horse bite to her upper arm.

Introduction

The anesthesia plan consisted of an ultrasound-guided supraclavicular brachial plexus and intercostobrachial nerve block. A SonoSite Export ultrasound unit (SonoSite Inc., Bothell, Washington) with a high-frequency 5 MHz - 12 MHz linear transducer used to identify the subclavian artery, first rib, and brachial plexus. A supraclavicular brachial plexus injection was performed with an in-plane lateral to medial ultrasound approach using a 22-gauge, 50 mm needle (Stimuplex R; B. Braun, Bethlehem, PA). A total of 25 mL of 1.5% mepivacaine was administered, with the initial 15 mL placed in the corner bordered by the subclavian artery medially and the first rib inferiorly and the remainder injected superiorly. The intercostobrachial nerve block was performed at the level of the axillary fossa. The entire width of the medial aspect arm was infiltrated with local anesthesia to raise a subcutaneous wheal.

Methods

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Aims

We hypothesized that LA resistance to infiltration is due to a variant of connective tissue inhibiting blockade of voltage gated sodium channel but proximal nerve bundles are susceptible to local anesthesia.

Results

Complete anesthesia was obtained after 15 minutes for irrigation, debridement and closure of the wound.

Conclusions

Resistance to local anesthetic infiltration in patients with EDS has been documented in the literature and is not well known to clinicians. We demonstrated that a brachial plexus block is an alternative to ineffective local anesthesia infiltration. Future studies include DNA sequencing to look for genetic defects in the sodium channels.