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Ultrasound-Guided Peripheral Nerve Blocks for Pain Management in Percutaneous Tendon Fenestration and PRP Injection: A Practical Guide

Topic: Pain

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BACKGROUND

Percutaneous ultrasound-guided tendon fenestration (PUTF) is a minimally invasive procedure for treating chronic tendinopathy. This technique employs controlled needle microtrauma via repeated fenestration to trigger a localized inflammatory cascade, promoting the release of inflammatory mediators that facilitate tissue repair. Platelet-rich plasma (PRP) is often used in conjunction with PUTF to enhance the therapeutic response. However, PUTF and PRP injections can be painful, impacting patient tolerance and treatment feasibility. While peritendinous local anesthetics offer pain relief, they may also inhibit tenocyte proliferation and reduce the efficacy of PRP. Ultrasound-guided peripheral nerve blocks (US-PNBs) have been used as a targeted analgesia method. This study proposes nerve targets for peripheral nerve blocks during PUTF, with or without PRP, to alleviate pain and discomfort during the procedure.

METHODS

High-resolution ultrasound images were performed to identify nerve targets for pain management in common PUTF procedures. The collected images illustrate probe positioning, sonographic anatomy, and labeled nerve targets for each condition. Targeted US-PNBs were proposed based on each tendinopathy to enhance procedural analgesia. These included radial nerve blocks for common extensor tendinopathy, medial antebrachial cutaneous and ulnar nerve blocks for common flexor tendinopathy, suprascapular nerve blocks for supraspinatus tendinopathy, superior gluteal nerve blocks for gluteus medius tendinopathy, infrapatellar branch of the saphenous nerve and recurrent peroneal nerve blocks for patellar tendinopathy, sural nerve blocks for achilles tendinopathy and tibial nerve blocks for plantar fasciopathy.

RESULTS

Ultrasound-guided peripheral nerve blocks appear safe and effective for perioperative and postoperative analgesia, potentially improving recovery and patient satisfaction. Accurate nerve imaging requires familiarity with anatomy, technique, and surrounding structures. This descriptive study introduces a tailored ultrasound-guided approach to peripheral nerve blocks for PUTF procedures in common tendinopathies, guiding nerve identification.

CONCLUSION

The proposed US-PNBs protocol for PUTF in common tendinopathies was made based on neuroanatomical studies. The authors speculate that the proposed nerve selection will optimize patient comfort, tolerability, and potentially improve long-term outcomes. Further clinical validation and comparative studies are needed to confirm the effectiveness of the proposed nerve targets.

Statement of Disclosures

None

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