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Trigger points attached to facet joints arthrosis are preferred targets for ultrasound-guided intervention to treat facet-mediated pain neck pain and tension-type headache

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Abstract

Introduction

Facet joint (FJ) arthropathy has the potential to be a target for injection treatment, but it is difficult to diagnose and confirm its associations with pain syndromes. Therefore, the effectiveness of FJ injections is still debated. Trigger points (TrPs) are a major cause of pain syndromes, and dry needling under ultrasound (US) guidance (DN-US) is a crucial therapeutic method for treating myofascial pain. DN-US is a proven and effective method for treating various pain conditions [1], including headache [2], restoring muscle function and motion [2,3], reducing fascia overload [4], and improving movement in the spine and FJ.

The aim of this study was to evaluate the relevance of US for diagnosing FJ arthrosis as a cause of neck pain and headache and to evaluate the efficacy of DN-US in treating facet-mediated pain neck pain and tension-type headache.

Materials and methods

The study included 16 consecutive patients (9 females, 25-61 years old) with symptoms of neck pain and tension-type headache suspected due to uni- and bilateral FJ arthrosis assessed through MRI and CT with three-dimensional reconstructions. Patients with migraine, rheumatic conditions, paresis, and advanced injury background were excluded. All patients received the DN-US protocol by R. Bubnov [1], which involves identifying MTrP according to clinical examination and US identification, and applying single fine (28G) steel needle DN under US guidance to elicit LTR and/or "needle grasp." Specific recommendations were given to preserve the effect after DN-US. We did long term observation of patients, additional sessions were done in cases of symptoms relapse.

Results

Results showed that bi- and unilateral FJ arthrosis was diagnosed on US at the levels of C3-Th1-2 in all patients. We observed fluid in joints, deformation, movement restriction, and closely localized TrPs in paravertebral (multifidus) muscles followed by targeted DN-US. We also distinguished different associated (additional) pain patterns due to complex postural variations (groin pain, pelvic pain, irradiation to leg, thigh, etc.) and referred pain (suboccipital area, shoulder, hands), which correlated with facet arthrosis localizations. Pain decreased in all patients from 6-8 on VAS at baseline to 1-4 immediately and VAS 3-4 at one week after the procedure. We noted a decrease in neuropathic pain after DN-US. We detected higher rates of spine motility, movements in particular segments, and facet joints registered on functional US, and improvement in postural balance in all patients after DN-US. Additional needling sessions to FJ capsule did not induce significant local twitch response effective in alleviating pain.

All patients had postural imbalance, multiple bilateral MTrPs, multifidus muscles at thoracic, lumbar levels, sacroiliac joint dysfunction, shoulders impingement, and other associated postural abnormalities. All MTrPs were inactivated, and posture imbalance was restored. In all patients without relapse of shoulder MTrPs and impingement no additional sessions were needed.

Conclusion

US is helpful in detecting FJ arthrosis, and DN-US has a good treatment outcome for facet-mediated neck pain and tension-type headache and can be considered a highly effective therapeutic option. Local interventions targeting FJ are not a relevant approach in most cases, and DN-US is more effective than targeting FJ, although it is not less complicated. Complex posture assessment and correction are needed. Effective alleviating of shoulder impingement was crucial to receive a stable effect.

References

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Abstract topic

12 Headache pathophysiology - Imaging and neurophysiology

Disclosure of Interest

None.