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Genicular nerve cryoneurolysis in osteoarthritis-related chronic knee pain

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Abstract
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Abstract

Introduction

Cryoneurolysis it’s a minimally invasive techniques. The technique involves the percutaneous introduction of a probe that produces a temperature of about -70° from the ending point. The extremely cold temperature block temporary the nerve conduction. The nerve injury is repaired without any neurological complications. Wallerian degeneration preserves the connective tissue that ensures nerve regeneration. In this case series, the major complications were reported.

Methods

Probe placement was performed with ultrasound guidance. In addition to the simplistic technique that uses the topographical reference of the geniculate arteries, other references were also evaluated such as: adductor tubercle, adductor major tendon, medial collateral ligament, lateral collateral ligament, iliotibial tract and femoral flexor tendon. Before the execution, we always do a test with lidocaine 10 mg/ml 1 ml for each geniculate nerve (superolateral, superomedial, inferomedial) and for the medial branch of the vastus intermedius nerve, this allowed to evaluate the effectiveness of the final procedure. Cryoneurolysis is performed with two freezing cycles of two minutes interspersed with 20 seconds of defrosting. The second cycle allows you to increase the freezing zone. Defrosting before probe extraction avoids damage to transition tissue. The proximity of the inferior lateral geniculate nerve to the common peroneal nerve made its treatment inadvisable. It was decided not to perform cryoneurolysis of the infrapatellar branch of the saphenous nerve. The study was performed on a series of 30 clinical cases. Each patient was followed up over time, also with telephone interviews, in which we ask about pain intensity, functional capacity and also complications of the procedure were evaluated.

Results

There were significant improvements in WOMAC scores, pain, function and quality of life.Most adverse events were mild and self-limiting. The case of a 74-year-old female patient, without ongoing anticoagulant therapy or coagulation problems, reported an interfascial hematoma extending to the skin plane of the lateral region of the knee. The problem completely disappeared in about 20 days. Another situation, which may not be a complication of the procedure, occurred in an 85-year-old lady. Although the pain from loading on the knee improved, there was pain in correspondence with the pes anserinus during the flexion phase of the thigh. Ultrasound evaluation revealed pes anserinus bursitis treated with triamcinolone infiltration.

Conclusions

Cryoneurolysis is a good way to manage chronic knee pain. The small number of patients does not allow statistically adequate evaluations. The study offers to consider possible complications and qualitative conclusions to . Randomized clinical trials with adequate numbers of patients will be needed to reach meaningful conclusions.

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