

Controversial Results in the Treatment of Lateral Epicondylitis of the Humerus up to now - Reasons?

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Device and producing company:

Piezoson 100, Wolf, Knittlingen, Germany

Introduction:

Epicondylitis is a painful enthesiopathy of the lateral (radial) or medial (ulnar) epicondyle of the humerus. Origination of the insertion of the tendons by desmoid ossification is distinctly different from that of epiphyseal ossification. Diaphysis involves the insertion site with periosteum (desmoid ossification) whereas epiphysis involves the insertion site without periosteum. A membrane lamination of fibro cartilage similar structure is located between the tissue of the tendon and the cartilage. Their chondroid cells are covered by a scissos-like forming fibro lamellar layer and they grow vertically into the bone. The epiphyseal processes are chondric preformed. Adaption of the different elasticity coefficients of tendon and bone tissue by intercalation of cartilage tissue is required. Pathologic changes in this area result in a so-called tendo-chondro-osteopathy. The difference between primary and secondary tendo-chondro-osteopathy is that primary enthesiopathies are characterised by their pathologic disorder directly in the local structures whereas secondary enthesiopathies have their origin in the surrounding structures or systematic disorders. Only the primary enthesiopathy can be successfully treated by extracorporeal shock waves.

Methods:

Evidence of mechano-transduction: We were able to demonstrate that the therapeutic energy source we used in the treatment of the lateral epicondylitis markedly influenced the migration and proliferation ability of adult stem cells as a function of impulse, frequency and power. In addition to other factors, tissue-specific stem cells are necessary for tissue repair.

Results:

A setting of 1000 impulses at approximately 20 MPa and an energy flux density of 0.08 mJ/mm² (setting 2-3) with the Piezoson 100 and a frequency of 4 Hz were found to be most effective.

Discussion:

Under these conditions we have detected in in-vitro trials. We treated 83 patients with an average age of 42.3 years and duration of symptoms 20.6 weeks. Subjective pain sensation prior to therapy was VAS = 7, and 6 weeks after therapy was VAS = 1.5

Conclusion:

Under the right conditions ESWT is useful for lateral epicondylitis and produce good results.