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Tendon injuries in sports: experiences with cryoultrasound

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Amongst the instrumental therapies with physical means, the therapeutic treatment with ultrasound is one of the most frequently used. From a review of the literature, a mild evidence has emerged of its therapeutic efficacy in the treatment of tendon injuries with respect to the placebo; in spite of these findings ultrasound therapy has maintained an important role in the treatment of pathologies of inflammatory-degenerative nature of the tendons.
Cryoultrasound is an innovative apparatus which is based on the synergy between two therapeutic techniques such as cryotherapy and ultrasound which, by interacting and boosting each other reduce the thermal effect to the advantage of the mechanical effect and a considerable reduction of temperature of the parts where it is applied. This allows the therapist to use this method also in acute phases of the tendonitis with the scope of blocking the evolution of the process and guaranteeing a prompt functional recovery of the athlete.

Methods

In order to observe the clinical results obtainable through the application of this new therapeutic methodology, a longitudinal, multicentric perspective study was carried out in 2004 involving a total of 162 patients (average age: 34.3 years) practicing sports at both professional and amateur level, suffering from tendonopathies or enthesopathy in acute and/or sub-acute phase. The patients observed in the study corresponded to the following inclusion criteria:

- ✓ absence of metabolic pathologies, blood clotting disorders, artheropathies, ulcers and/or skin injuries, phlebothrombosis, thrombophlebitis, cancer;
- ✓ absence of alteration in the sensitivity to temperature and pain;
- ✓ absence of cold intolerance;
- ✓ inflammatory pathologies manifested less than one month previously;
- ✓ no associated physical therapy.

For the clinical evaluation of the patients, the following parameters were considered:

- pain;
- functional limitation.

All patients underwent an ultrasound scan before the treatment and again after the last therapy session.
The patients followed the same protocol based on 10 applications on a daily basis (5 a week) lasting 20 minutes each, using 2.2 W/cm$_2$ power and a temperature of –2° C.
The evaluation of the results was obtained by means of a VAS scale for the pain and a WOMAC forms for the articulation function.

Results and discussion

Processing of the data highlighted a clear improvement in the subject's pain symptoms, on average in more than 90% of cases, some of whom after the first five sessions. With regard to the functional recovery, the improvement percentage was, on average, over 80%.

A follow-up was carried out after 3 months, which highlighted the stability of the results obtained.

Conclusions

The continuation of the study, especially with the addition of control and comparison groups, will in time probably produce even more significant results.

The results up to now obtained and the maintenance of these, definitely encourage the treatment of tendon injuries in athletes with Cryoultrasound.