



Extracorporeal shock wave therapy in patients with lateral epicondylitis

Lateral epikondilitli olgularda ekstrakorporeal şok dalga tedavisi

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Amaç: Lateral epikondilitli olgularda ekstrakorporeal şok dalga (EŞD) tedavisinin sonuçları değerlendirildi.

Çalışma planı: Çalışmada, lateral epikondilit nedeniyle uygulanan konservatif tedavi yöntemlerinden yarar görmeyen ve cerrahi tedaviyi kabul etmeyen 12 hastanın (8 kadın, 4 erkek; ort. yaş 40) 13 dirseği incelendi. Hastalara ikişer günlük aralarla ortalama üç seans (dağılım 2-7 seans) 15-20 kV EŞD tedavisi floroskopi eşliğinde uygulandı. Her seansta ortalama 1200 atış yapıldı. Tedaviyi takiben immobilizasyon uygulanmadı. Hastalara EŞD öncesinde ve tedavinin üçüncü ay ile 12. ayında istirahat ağrısı ve dirence karşı el bileği dorsifleksiyonunda ağrı olup olmadığı soruldu. Sonuçlar Roles ve Maudsley ağrı skorlamasına göre değerlendirildi. On ikinci aydaki son kontrollerde omuz fleksiyonda, dirsek ekstansiyonda iken, hastalardan ağırlık kaldırması istenerek yakalama kuvveti ölçüldü ve sağlam tarafla karşılaştırıldı.

Bulgular: Tedavisi öncesinde ortalama 3.4 olan ağrı skoru, tedavi sonrasında ortalama 2'ye geriledi. Sağlam tarafa göre, yakalama kuvveti tutulu tüm ekstremiteler için ortalama %82.1 bulundu. Son kontrollerde dokuz hasta (10 dirsek) (%75) tedavinin yararlı olduğunu belirtti; bu hastaların tümü, tutulan tarafta sağlam kollarının en az %85 yakalama gücüne kavuştu. İki hasta (%16.7) tedaviden hiç yarar görmediğini bildirdi. Bu hastalarda ağrı skoru kötü sınıfa girmektedir. Bir hasta (%8.3) ise kısmi yarar gördüğünü ifade ederek tedaviden memnun olmadığını belirtti; bu hastanın skoru orta olarak değerlendirildi. Bu hasta sağlam kolunun %60'ı oranında yakalama kuvvetine kavuştu.

Sonuç: Ekstrakorporeal şok dalga tedavisi konservatif tedavilerden yarar görmeyen ve cerrahi tedaviyi kabul etmeyen hastalara sunulabilecek alternatif bir yöntemdir.

Anahtar sözcükler: Tenisçi dirseği/tedavi; yüksek enerjili şok dalgaları/terapötik kullanım.

Objectives: We investigated the effect of extracorporeal shock wave therapy in the treatment of lateral epicondylitis.

Methods: The study included 13 elbows of 12 patients (8 women, 4 men; mean age 40 years) who did not benefit from conservative therapy for lateral epicondylitis and refused surgical therapy. Under fluoroscopic guidance, extracorporeal shock wave therapy of 1200 pulses at 15-20 kV was administered at a mean of three sessions (range 3 to 7 sessions) with two-day intervals. No immobilization was applied after sessions. The patients were questioned about pain during rest and during dorsiflexion of the wrist against resistance before and after three and 12 months of treatment. The results were evaluated using the Roles and Maudsley pain scores. At the end of 12 months, the patients were asked to lift weight with the shoulder in flexion and the wrist in extension to measure grip strengths in comparison with the unaffected side.

Results: The mean pain score which was 3.4 before treatment decreased to 2 after treatment. The mean grip strength of the affected extremities was 82.1% of the normal side. At final follow-ups, nine patients (10 elbows) (75%) stated that the treatment was beneficial; all these patients achieved at least 85% of grip strength of the normal side. Two patients (16.7%) reported no benefit from therapy and had a poor pain score. The result was fair in one patient (8.3%) who expressed dissatisfaction and had partial relief after the procedure. This patient achieved 60% of grip strength of the unaffected side.

Conclusion: Extracorporeal shock wave therapy is an alternative method for patients who do not benefit from conservative treatment and refuse surgical treatment.

Key words: Tennis elbow/therapy; high-energy shock waves/therapeutic use.

Lateral epicondylitis is a commonly encountered problem that is characterized by degeneration of the forearm extensors. It can be caused by over use or repeating micro trauma. Modifying the activities that provoke pain can be adequate for treatment however a brace to be applied at the proximal forearm or a brace that limits wrist movements is frequently needed.^[1] The patients may benefit from local corticosteroid and anesthetic injections at the painful spot.^[2] In cases where conservative treatment methods fail, arthroscopic or open surgical treatment is recommended.^[3,4,5,6]

Extracorporeal shock wave treatment was first used in orthopedics for treatment of pseudoarthrosis and delayed union in Germany in 1989. In USA, ESWT was approved by FDA as a treatment option for plantar fasciitis in 2000 and for lateral epicondylitis in 2003.

Material and methods

13 elbows of 12 patients (8 women, 4 men; mean age 40.1) that were diagnosed as lateral epicondylitis between 1999-2003 and that did not benefit from conservative treatment methods such as modifying activities and/or rest, using lateral epicondylitis bandage / wrist brace, local injection or physical therapy were included in this study. As part of the conservative treatment protocol, local corticosteroid (triamcinolone acetate 1ml) and anesthetic (lidocaine 1cc) injection twice with 6 month interval and physical therapy (ultrasound and TENS) was applied on each patient.

15-20 kv ESWT for a mean number of 3 sessions was applied to the patients with a electrohydraulic lithotripter (Breakstone 2000 Breakthrough Medical

Corp., Gaithersburg MD USA) under the guidance of fluoroscopy.

There was an mean interval of 2 days between the sessions. The patients were advised to apply local ice and take oral tablets of paracetamol 500 mg four times a day in cases they had pain. None of the patients had pain that they could not tolerate. Immobilization was not applied but they were advised to not to lift heavy weights for 6-8 weeks.

The patients were questioned about the presence of pain at rest and pain during wrist dorsiflexion against resistance and the results were evaluated according to the Roles and Maudley Scoring System (Table 1). At the final follow up visit at 12 months after the treatment, they were asked to lift weights of 0.5 kg while their shoulder was at 30° flexion and the elbow was in full extension. Grip strength was compared to the other side.

Results

At the final follow up visit, 10 patients (11 elbows) stated that they were satisfied with the results and they would choose the same treatment if necessary. All of the patients who were satisfied, gained ≥85% strength of the uninvolved arm. Three patients were not happy after treatment. Two patients were graded as “poor” and one patient as “fair” according to the Roles and Maudley Scoring System.^[7] This patient reached a strength 60% of

Table 1. Roles ve Maudsley Pain Scoring^[7]

1	Excellent	No pain, no restriction for movement and activity
2	Good	Occasional pain, no restriction for movement and activity
3	Fair	With pain during rest and exertion and loading
4	Poor	Daily activities limited by pain

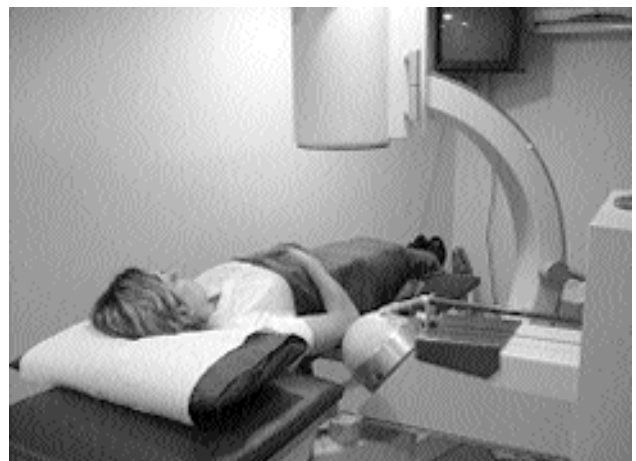


Figure 1. Positioning of the lithotripter and the fluoroscopy device.

the uninvolved arm. The patient with the bilateral symptoms was evaluated according to the mean weights a healthy individual could lift.

Discussion

The beneficial effects of ESWT on Achilles tendon healing after trauma has been shown in animal studies.^[8] The benefits of ESWT on calcifying rotator cuff tendinitis has been reported in another study.^[9] Furia reported that the patients are happy 12 weeks after treatment and that this treatment method is safe.^[10] Some authors have reported that the studies with satisfactory results are poorly designed with lack of control or placebo group.^[11,12,13]

Chung stated that there is not a significant difference between the ESWT group and the control group after a period of 8 weeks according to his prospective randomized control study.^[12]

Crowther reported that the difference between the results after steroid injection and ESWT was insignificant.^[14] To our knowledge, there are no other reports on usage of ESWT in treatment of lateral epicondylitis in the Turkish literature. Our study consists of patients who did not benefit from conservative measures and refused surgical treatment for various reasons.

The patients were questioned about their satisfaction after the treatment and whether they would have the same procedure done in the presence of similar symptoms in the future. Functional capacity and the presence of pain during daily activities were also evaluated according to the Roles and Maudley Scoring System.

Two patients who were unable to shoot off the ball (while sending the ball after wrist dorsiflexion). These two patients were able to play basketball as early as 6 weeks after the treatment. There are a few drawbacks of this study; the patients involved in this study were not hard work labourers.

Therefore we can not predict the results of this treatment in patients who have to load their elbows continuously. Since we do not have control group in this study, it was impossible to compare the results after ESWT with another treatment method, however as the satisfaction rates is high among these patients, it is fair to state that ESWT can be tried safely in patients who refuse surgical treatment when all conservative measures fail.

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