



Short-term results of treatment of tennis elbow with anti-inflammatory drugs alone or in combination with local injection of a corticosteroid and anesthetic mixture

Tenisçi dirseği tedavisinde antienflamatuvar ilaç tedavisinin tek başına ve kortikosteroid ve anesteziik karışımı enjeksiyonla birlikte kullanılmasının kısa dönem sonuçları

Serdar TOKER,¹ Volkan KILINCOGLU,² Elif AKSAKALLI,³ Erim GULCAN,⁴ Korhan OZKAN⁵

Dumlupınar University School of Medicine Department of,¹Orthopaedics and Traumatology,³Physical Therapy and Rehabilitation,⁴Internal Medicine,²Fatih Sultan Mehmet Research and Training HospitalDepartment of Orthopaedics and Traumatology,⁵Goztepe Research and Training HospitalDepartment of Orthopaedics and Traumatology

Amaç: Tenisçi dirseği tedavisinde antienflamatuvar ilaç tedavisinin tek başına ve lokal kortikosteroid ve anesteziik karışımı enjeksiyonla birlikte kullanılmasının erken dönemdeki etkinliği karşılaştırıldı.

Çalışma planı: Çalışmaya, lateral epikondilit tanısı konan 21 hasta (12 erkek, 9 kadın; ort. yaş 45; dağılım 19-72) alındı. Rastgele seçimle 10 hastaya (grup 1) sadece oral antienflamatuvar ilaç ve topikal antienflamatuvar ilaç tedavisi, 11 hastaya (grup 2) ise, buna ek olarak, bir kez lokal kortikosteroid ve lokal anesteziik ilaç enjeksiyonu uygulandı. Hastalar tedavi öncesinde ve tedaviden bir ay sonra ağrı skorlaması (0-10 puan) ve klinik muayene ile değerlendirildi.

Sonuçlar: Grup 1'de dört hastada (%40), grup 2'de 10 hastada (%90.9) ağrı yakınıması tam veya tama yakın derecede düzeldi ve fonksiyon kısıtlılığı kalmadı. Fizik muayenede, grup 1'de iki hasta (%20), grup 2'de sekiz hasta (%72.7) lateral epikondil üzerine bastırmakla ve el bileği dorsifleksiyonu ile ağrısızdı. Tedavi öncesine göre iki grupta da ağrı skorlarında anlamlı derecede düşüş sağlandı (p=0.026 ve p=0.003); ancak, grup 2'de uygulanan tedavinin etkinliği anlamlı derecede daha fazlaydı (p=0.036).

Çıkarımlar: Çalışmamızda uygulanan kombinasyon tedavisi kısa dönemde büyük yarar sağlasa da, bu etkinin geçici olabileceği ve steroidlerin tendonlar üzerindeki yan etkilerinin de dikkate alınması gerektiği sonucuna varıldı.

Anahtar sözcükler: Anesteziik, lokal; antienflamatuvar ilaç; ilaç kombinasyonu; enjeksiyon; metilprednizolon; tenisçi dirseği/ilâç tedavisi.

Objectives: We compared the short-term results of anti-inflammatory drugs alone or in combination with local injection of a corticosteroid and anesthetic mixture in the treatment of tennis elbow.

Methods: The study included 21 patients (12 males, 9 females; mean age 45 years; range 19 to 72 years) with tennis elbow. The patients were randomized to oral and topical anti-inflammatory drugs alone (group 1, n=10) or combined with a single local injection of a corticosteroid and anesthetic mixture (group 2, n=11). The patients were evaluated with a pain score (0 to 10 points) and clinical examination before and one month after treatment.

Results: Complete or near-complete relief of pain and unlimited function were obtained in four patients (40%) in group 1, and in 10 patients (90.9%) in group 2. On physical examination, two patients (20%) in group 1 and eight patients (72.7%) in group 2 were pain-free upon pressure on the lateral epicondyle or dorsiflexion of the wrist. Pain scores differed significantly in both groups after treatment (p=0.026 and p=0.003, respectively); however, combination treatment was associated with a significantly higher efficacy (p=0.036).

Conclusion: It was concluded that significantly enhanced efficacy of the combination treatment used in this study might be limited to the short-term and that adverse effects of steroids on the tendons should be taken into consideration.

Key words: Anesthetics, local; anti-inflammatory agents; drug combinations; injections; methylprednisolone; tennis elbow/drug therapy.

Tennis elbow (TE) is characterised by pain and loss of function due to an inflammatory reaction in con-joint tendon of extensor muscles caused by repetitive trauma and stretching on the lateral epicondyl in tennis and other sports.^[1]

Various treatment modalities for TE are present in literature. Antienflamatory drugs^[2], local steroid injection^[3,4], electromagnetic field treatment^[5], botulinum toxin injection^[6], extracorporeal shock wave therapy^[7], splinting^[8] and physical therapy modalities are conservative methods. Surgical procedures to release tendons binding to lateral epicondyl were described for inefficient concervative treatment. We aimed to compare local steroid and local anaesthetic drug mixture injection with antienflamatory drug treatment with only antienflamatory drug treatment in tennis eldow.

Patients and methods

21 patients [12 males mean age: 48(29-72), 9 females mean age: 41(23-71)] admitted to orthopaedics and traumatology policlinic with pain on lateral side of elbow and diagnosed as tenis elbow following physical examination were taken into study. Eleven(6 males, 5 females) of 21 patients were in the group of local steroid and local anaesthetic drug mixture injection with antienflamatory drug treatment(Figure 1) [(LC+LA) 1cc. Depomedrol (metilprednisalone asetate), 1 cc.Citanest (prilocain hidroclorure)+ oral antienflamatory(OA) (Diclofenac Potasium 3x1)and topical antienflamatory (TA) (Etofenamate cream form)] while 10(6 males, 4 females) were in the group of topical and oral antienlamatory drug treatment group [(OA) (Diclofenac Potasium 3x1)and topical antienflamatory (TA) (Etofenamate cream form)].

Right side was effected in 15(71.4%) patients while left side was effected in 6(28.5%) patients. Males' occupational distrubution was 5 workers(working by physical strenght), 3 officials(using typewriter and or computer), 2 self employed, 1 policeman and 1 teacher while females' were 6 housewives, 1 teacher, 1 official and 1 self employed. None of the patients had any systemic and musculoskeletal system disorders. Patients were called one month later for control examination and results were recorded.

Results

Ten [(90.9%) 5 males, 5 females] of 11 patients in group of local steroid and local anaesthetic drug mix-

ture injection with antienflamatory drug treatment revealed nearly complete releif of pain and elbow functions while one patient [9.09% (male)] stated that he still had pain and difficulty in functions.

In physical examination, eight [(72.7%)5 males ,3 females] of 11 patients revealed no pain by pressing down on the lateral epicondyl with dorsoflexion of the wrist while three[(27.2%)1 male,2 females] patients stated that they had mild pain with this examination.

Four [(40%) 3 males, 1 females] of 10 patients in topical and oral antienlamatory drug treatment group revealed that they had complete releif of pain and they had no limitation in elbow functions while six [(60%) 3 males,3 females] patients revealed no significant difference in complaints. In physical examination, two[(20%) 2 males] patientshad no pain by pressing down on the lateral epicondyl with dorsoflexion of the wrist while eight [(80%) 4 males, 4 females] had the same level of pain before treatment (table 1 and table 2). We did not face any complication in any of the patients.

Discussion

In general population the incidence of TE was reported to be 1-3% in various studies. Mostly TE is disease of 4th decade and it is quite rare before thirties. Both genders are equally effected although some studies reported that males are more stricken.^[9]

TE is generally effect the dominant side and right side is effected two times more than left.^[10,11] It



Figure 1. Application of injection

Table 1. Pain scores of groups before and after the treatment

	Group 1		Group 2	
	Mean.±SD	Distribution	Mean.±SD	Distribution
Before Treatment	7.1±1.4	5.0-9.0	7.2±9.8	6.0-9.0
After Treatment	4.7±3.4	0.0-8.0	1.6±1.9	0.0-7.0
	p=0.026		p=0.003	

Group 1: Only oral and topical antiinflammatory drug treatment;

Group 2: Addition to group 1, local corticosteroid and local anaesthetic drug injection.

is a general conclusion that TE is a vocational disorder.^[12] Housewives, surgeons, dentists and sportsmen are prone to have TE because of repetitive forearm rotations, wrist flexions and extensions.^[12,13] In our study, we also had data suggesting that.

In our study, right elbows and dominant sides were significantly more effected as reported in literature. Unfortunately we did not have enough number of patients to compare the difference between genders. Bisset et al^[14], in their randomised controlled study on 198 patients, reported corticosteroid injection treatment to be the most effective strategy in short term however results were worst than physiotherapy and wait and see strategy in long term.

In our study, we found that injection treatment has a great additive effect on pain relief of oral and topical antiinflammatory drugs when short term results were considered. We think that better results of physiotherapy in long term may be due to possible side effects of steroids on tendons but unfortunately the number of our patients and study time are not adequate to put forward such a conclusion.

Elaine et al.^[15], compared corticosteroid injection, oral antiinflammatory drugs (naproxen) and placebo groups in their study. In first month, they reported 92% good results in injection group while the others were 57% and 50% respectively and results were statistically significant ($p < 0.001$). One year later, the results were 84%, 85%, 82% respectively and statistically there was no difference between the groups ($p > 0.05$).

Elaine stated that local corticosteroid injection treatment was effective but one-year results were similar with other treatment modalities. Haker et al.^[16] reported that 0.2 ml triamcinolon and 0.3 ml bupivacain injection treatment results were better than epicondylitis bandage and splinting for two weeks however 44% recurrence was detected in 6th month and no difference was obtained in physical examinations on 3rd, 6th and 12th months.

We aimed to compare local steroid and local anaesthetic drug mixture injection with antiinflammatory drug treatment with only antiinflammatory drug treatment in tennis elbow.

We did not find a study in this format in the literature. We observed that steroid injection treatment provided very good results (90%) in pain relief as in similar studies in the literature especially in short term.

We found 40% good results without injection. When the literature was examined it is possible to think that good results of steroid injections are temporary even modalities without injection may be safer because of lack of possible side effects of steroid on tendons.

It was concluded that significantly enhanced efficacy of the combination treatment used in this study might be limited to the short-term and that adverse effects of steroids on the tendons should be taken into consideration.

References

- Sezgin Z. Dirsek eklemi hastalıkları. In: Ortopedi ve travmatoloji. Cilt 1. İstanbul Tıp Fakültesi Klinik Ders Kitapları - 15. İstanbul: Eko Matbaası; 1981. s. 358-9.
- Hay EM, Paterson SM, Lewis M, Hosie G, Croft P. Pragmatic randomised controlled trial of local corticosteroid injection and naproxen for treatment of lateral epicondylitis of elbow in primary care. *BMJ* 1999;319:964-8.
- Newcomer KL, Laskowski ER, Idank DM, McLean TJ, Egan KS. Corticosteroid injection in early treatment of lateral epicondylitis. *Clin J Sport Med* 2001;11:214-22.
- Altay T, Gunal I, Ozturk H. Local injection treatment for lateral epicondylitis. *Clin Orthop Relat Res* 2002; (398):127-30.
- Uzunca K, Birtane M, Tastekin N. Effectiveness of pulsed electromagnetic field therapy in lateral epicondylitis. *Clin Rheumatol* 2007;26:69-74.
- Hayton MJ, Santini AJ, Hughes PJ, Frostick SP, Trail IA, Stanley JK. Botulinum toxin injection in the treatment of tennis elbow. A double-blind, randomized, controlled, pilot study. *J Bone Joint Surg [Am]* 2005;87:503-7.
- Crowther MA, Bannister GC, Huma H, Rooker GD. A pro-

- spective, randomised study to compare extracorporeal shock-wave therapy and injection of steroid for the treatment of tennis elbow. *J Bone Joint Surg [Br]* 2002;84:678-9.
8. Jensen B, Bliddal H, Danneskiold-Samsøe B. Comparison of two different treatments of lateral humeral epicondylitis: "tennis elbow". A randomized controlled trial. *Ugeskr Laeger* 2001;163:1427-31. [Abstract]
 9. Viola L. A critical review of the current conservative therapies for tennis elbow (lateral epicondylitis). *Australas Chiropr Osteopathy* 1998;7:53-67.
 10. Noteboom T, Cruver R, Keller J, Kellogg B, Nitz AJ. Tennis elbow: a review. *J Orthop Sports Phys Ther* 1994;19:357-66.
 11. Hamilton PG. The prevalence of humeral epicondylitis: a survey in general practice. *J R Coll Gen Pract* 1986;36:464-5.
 12. Murtagh JE. Tennis elbow. *Aust Fam Physician* 1988;17:90-1, 94-5.
 13. Gerberich SG, Priest JD. Treatment for lateral epicondylitis: variables related to recovery. *Br J Sports Med* 1985;19:224-7.
 14. Bisset L, Beller E, Jull G, Brooks P, Darnell R, Vicenzino B. Mobilisation with movement and exercise, corticosteroid injection, or wait and see for tennis elbow: randomised trial. *BMJ* 2006;333:939.
 15. Haker E. Lateral epicondylalgia (tennis elbow): a diagnostic and therapeutic challenge [Dissertation]. Karolinska Institutet; Stockholm: 1991.