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Autologous Blood Infiltration Vs Local Steroid Infiltration In The Treatment Of Chronic Tennis Elbow; A Prospective Clinical Study

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Abstract

Background

Lateral elbow pain is one of the most common sources of medical consultation for non-traumatic elbow disorders. The most frequent diagnosis is the tendinous disorder known as lateral epicondylitis (LE) or 'tennis elbow.[1] Tennis elbow is relatively more common among active individuals in the general population.[2] Typical signs and symptoms include pain and tenderness over the lateral epicondyle, exacerbated by resisted wrist movements and impaired grip strength.

The aim of our study is to find out short term benefits of autologous blood infiltration over corticosteroid infiltration in treatment of tennis elbow and whether it can replace steroids in treatment of tennis elbow.

Materials and Methods: Patients with nontraumatic elbow pain attending the Orthopedics Outpatient Department of Government Hospital for Bone and Joint Surgery, an associated hospital of Government Medical college Srinagar from March 2020 to March 2022 were included in the study. The participants were randomly allocated into two groups; group-A (corticosteroid group) and group-B (autologous blood group). Visual analogue scale (VAS) was used to acess the grades of pain.

Results: Initially, both the groups had comparable initial VAS scores. At 1 month follow up, group-A showed a significantly greater improvement in mean VAS scores when compared to group-B. However, at 6 months follow up, group-A showed no statistically significant difference in mean VAS scores when compared to group-B.

Conclusion: From our study we concluded that both local corticosteroid and autologous blood were equally efficacious in the treatment of tennis elbow, however corticosteroid group showed improved short term results at 1month while the results were almost similar at 6months follow up.

Keywords: Tennis elbow, autologous blood, corticosteroid, visual analogue scale

Introduction

Tennis elbow is described as chronic symptomatic degeneration of wrist extensor tendons involving their attachment to the lateral epicondyle of humerus. It was first described by Runge in 1873.[3] It is a common condition affecting 1-3% of population, generally affecting middle aged people without gender predisposition.[4] Tennis elbow is relatively more common among active individuals in the general population.[2] Tennis elbow has been found to be the second most frequently diagnosed musculoskeletal disorder of the upper extremities in a primary healthcare setting.[5] The majority of patients present with pain located just anterior to, or in the

bony surface of the upper half of the lateral epicondyle, usually radiating in line with the common extensor mass. The pain can vary from intermittent and low-grade pain to continuous and severe pain which may cause sleep disturbance. The pain can get exacerbated by resisted wrist extension and passive wrist flexion. The treatment of LE should be orientated towards the management of pain, preservation of movement, improvement in grip strength and endurance, return to normal function and control of further clinical deterioration.[6] The initial treatment is with rest, modification of activity and local splint. Local injection of corticosteroids comes next if the initial treatment is found to be unsatisfactory. Another modality of treatment is the local administration of growth factors in the form of autologous whole blood or Platelet-Rich Plasma (PRP).

Aims Of Study

To date, no universally accepted regime of treatment exists; however some general principles of treatment should be taken into consideration.[6] There exist several different treatments for tennis elbow with varying side effects. Local injection of corticosteroids and autologous blood has been used for the treatment for tennis elbow. In a study by Jobe and Cicotti,[7] it was found that superficial injection of corticosteroid results in subcutaneous atrophy associated with local depigmentation and that intratendinous injection may lead to adverse changes within the ultrastructure of the tendon. The use of autologous growth factors seems to be promising in the treatment of this disease. It is thought to lead to tendon healing through collagen regeneration and the stimulation of angiogenesis. It is obtained from autologous blood and is a cheap and readily available alternative to steroids without any adverse effect. The aim of our study is to find whether autologous blood provides comparable functional outcome over local steroids.

Autologous blood was selected as the medium for injection because

1. It is minimally traumatic.
2. It is devoid of potential complications such as depigmentation, skin atrophy, tendon tears.
3. It is simple to acquire and prepare, easy to carry out as an outpatient procedure.
4. It is inexpensive.[8,9]

Materials And Methods

Our study was a prospective interventional cohort study conducted in the Orthopedics department, Government Hospital for Bone and Joint Surgery, an associated hospital of Government Medical college, Srinagar from March 2020 to March 2022. Institute ethical committee approval and proper informed consent was taken from all patients.

Inclusion Criteria

Patients between 18-60 years of age diagnosed of having tennis elbow were included in the study.

Exclusion Criteria

1. Pain less than 6 months duration.
2. History of significant trauma.
3. Patients having local infection over the lateral aspect of elbow.
4. Patients with history of surgery for tennis elbow.
5. Elbow swelling.
6. Cervical radiculopathy

50 patients were included in our study. All patients were informed about the study and a written consent was obtained from those willing to participate in the study. The participating subjects were randomly grouped into two groups 1: steroid (Group A) and 2: autologous blood (Group B)). Pain in the subject's affected elbow was measured using Visual Analogue Score (VAS).

Procedure

Subjects were made to sit comfortably on chair. The affected elbow was properly exposed and thoroughly cleaned with povidone-iodine and spirit. The point of maximum tenderness was identified over lateral aspect of elbow by palpation. 80mg of methyl-prednisolone (Depo-medrol) was infiltrated locally into the subjects belonging to group-A and 2ml of whole blood was infiltrated into subjects belonging to group-B, the blood sample was withdrawn from contralateral antecubital vein. All the subjects were observed for 1 hour for any acute adverse effects. Following the procedure, they were asked to apply ice over the elbow, take paracetamol if necessary. Pain in the subjects' elbow was reassessed after 1 month and again at 6 months using VAS. Patients were advised not to take any other analgesics during

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the study period. All injections were given by the same doctor.

Results

The age in our study range from 18-56 years with mean age of 44.5 in group-A and 36.6 in group-B, p-value=0.15 which was statistically insignificant. In group-A total number of males were 15(60%) and females were 10(40%) and in group-B total number of males were 14(56%) and females were 11(44%), p-value=0.54 was statistically insignificant. The peak incidence was 5th decade in group-A and 4th decade in group-B. The mean duration of symptoms in both groups was same 1.7years with p-value of 0.92 signifying there is no significant difference between two groups regarding mean duration of symptoms. Both group-A and group-B had comparable visual analogue scores (VAS) initially. At 1 month follow up group-A showed significantly greater improvement in VAS when compared to group-B. In group-A VAS improved from 7.1 to 4.3 (39.4%) while in group-B VAS improved from 7.1 to 6.2 (12.7%), p-value0.001. At 6 month follow up the groups did not show any significant difference statistically when compared to each other. In group-A VAS improved from 7.1 to 2.8 (60.5%) and in group-B VAS improved from 7.1 to 2.6 (63.4%), p value 0.79.

Discussion

In our study the mean age was 40.55 years (range 18-56years), the peak incidence was seen from 30-50 years. This was similar to few other studies which observed mean age of 42.7 years.[10] and 43 years.[11] Few other studies showed mean age of 45years[11] and 46.5 years.[8] In our study, out of the 50 participants, 29 were male patients and 21 were female patients. Two other studies had equal number of males and female patients.[9,12] Two studies had more number of male patients.[12] and two other studies had equal number of males and females.[9,12] The mean VAS score before injection in both the groups was comparable. Mean VAS score for group-A was 7.1 and mean VAS score for group-B was 7.1, p value was 0.91. At 1 month follow up, statistically significant difference between the two groups with VAS scoring was seen. Group-A showed statistically significant decrease in VAS score at 1 month compared to group-B.

A study by Kazemi M et al.[13] compared local corticosteroid with autologous blood injections for the short-term treatment of tennis elbow. Intergroup analyses at 1 month showed superiority of autologous blood for severity of pain (p-value = 0.001) and quick DASH questionnaire score (p-value = 0.004). They concluded that autologous blood was more effective in short term than the corticosteroid injection. When comparing with the above mentioned study, our study had conflicting results as far as VAS scores are concerned. However, our study had results comparable to that of a study by Ozturan KE et al.[14] and another study by Roy RK, Prasad M.[10] where corticosteroid injection provided a high success rate in the short term.

Conclusion

From our study, we concluded that both local corticosteroid and autologous blood were equally efficacious in the treatment of tennis elbow, however corticosteroid group showed improved short term results at 1month while the results were almost similar at 6months follow up.

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