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Original Article

Comparative study of injection autologous blood and steroid injection in the treatment of tennis elbow

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ABSTRACT

Background: It has been recently reported by various literatures that local injection of autologous blood in tennis elbow offers a significant benefit by virtue of various growth factors contained in the blood. The objective of this study is to evaluate the efficacy and role of autologous blood - injection for the treatment of lateral epicondylitis which is compared with the local injection of cortico-steroid.

Methods: It is a prospective randomized trial which was undertaken in 60 consecutive patients of untreated lateral epicondylitis. Randomization was done on alternate basis and two groups were constituted, first one receiving steroid injection and second one receiving the injection of autologous blood. Both groups were evaluated at 2 weeks, 12 weeks and 24 weeks for pain relief and stage of disease.

Results: There were no between group difference in demographic characteristics and pre-injection VAS score. In first follow up (2 weeks) VAS score in autologous blood group (1.33 ± 1.29) is significantly lower (*p* value P 0.04) than that of steroid group (2.83 ± 2). Similarly Nirschl's stage in first 2 week in autologous blood group was significantly lower than that in steroid group (2.8 ± 1.45). VAS score and Nirschl's stage in 12 weeks and 24 weeks follow up in both group was similar. Functional score at first 2 weeks follow up is significantly better (*p* value- 0.039) in autologous blood group (excellent-73%, good-13.33%, fair-10% and poor-3.34%) than in steroid group (excellent-36.6%, good-30%, fair-20%, poor-13.33%). Functional score at 12 weeks and 24 weeks was comparable in both the group.

Conclusion: Autologous blood injection is more effective than steroid injection in the short term follow up in tennis elbow but its long-term outcome seems comparable.

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1. Introduction

Lateral epicondylitis (tennis elbow), a familiar term used to describe myriad symptoms around the lateral aspect of the elbow. Runge first described the clinical entity in 1873, and since then almost 30 different conditions have been proposed as etiologies.[1] Tennis elbow occurs most often in the age group of 40–60 years except in tennis player who are generally younger.[2] and it affects men and women to the same degree.[3] Lateral epicondylitis of the elbow popularly known as tennis elbow refers to a degenerative process in the common origin of the extensor group of muscles of the forearm. The disorder arising as a result of repetitive movements of the involved muscles is a common cause of elbow pain particularly in the working age group. The disease imparts significant disability to those affected in terms of the quantity and quality of work done. Tennis elbow may cause significant weakness of grip strength particularly with the elbow in extension affecting a vast majority of daily life activities.[4] The incidence of tennis elbow in the population varies from 1 to 3%.[5] In addition to age, risk factors for developing tennis elbow include repetitive and forceful motions of wrist and arm, participating in racket sports, using a faulty tennis playing technique and smoking tobacco.

There are various forms of non-operative treatment modalities available. These are watchful-waiting, non-steroidal anti-inflammatory drugs, corticosteroid injection, counterforce bracing, phonophoresis, iontophoresis, laser therapy, extracorporeal shock wave therapy, botulinum toxin, acupuncture, platelet rich plasma injection, and autologous blood injection. Various forms of operative options for lateral epicondylitis are open release of the extensor origin, debridement of the extensor origin, decompression of posterior interosseous nerve, arthroscopy, anconeous rotation, and denervation of the lateral epicondyle.[6]

Table 1 – Table showing Sex distribution.

Variable	Blood	Steroid	*p*-Value	Remarks
Sex				
Male	11	14	0.432	Not significant
Female	19	16		

We believe that autologous blood injection is quite superior to local steroid injection in the management of acute tennis elbow in long-term follow-up and is easy which can done as out-patient procedure.

2. Materials and methods

Our randomized control trial study was conducted at the Department of Orthopedics Surgery in a tertiary care hospital from November 2015 to December 2016 on 60 patients. Cases presenting to outpatient department with tennis elbow meeting inclusion criteria were selected.

2.1. *Procedure*

Observation of injection of autologous blood in clinically diagnosed case of tennis elbow was done. The guide performed the procedure and patient diagnosed as a lateral epicondylitis was randomized using block randomization technique into two groups (Figs. 1 and 2):

Group 1: Patients having lateral epicondylitis of the humerus injected with 1 ml of autologous blood with 1 ml of 2% plain lidocaine.
Group 2: Lateral epicondylitis of the humerus injected with 1 milliliter (40 mg) of methyl prednisolone and 2% lidocaine (1 ml each).

Patient counseled regarding the possible side effects like hypersensitivity reaction, pain and swelling at injection site. Patients were then asked to follow-up on 2nd week, 3rd month, and 6th month duration after injection therapy.

Group 1: Patients were taken to minor procedure room and cleaning and draping done. One milliliter of autologous blood were drawn from superficial vein of ipsilateral upper limb and mixed with 1 ml of 2% lidocaine. The mixture of abovementioned solution was gently shaken and injected with 3 ml of syringe into most painful part of lateral epicondyle of humerus. Sterile medicated dressing was applied over the injection site.

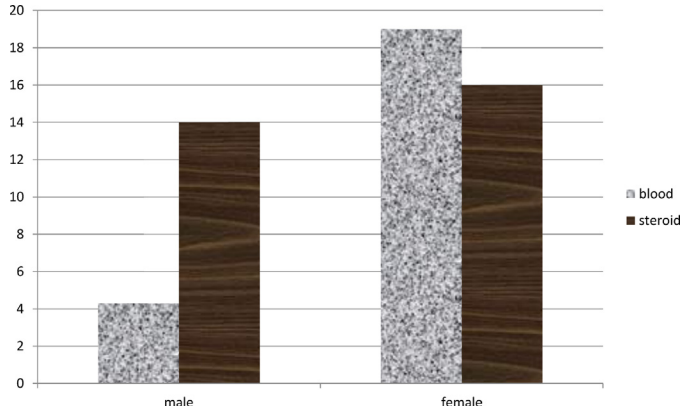

Fig. 1 – The gender distribution in the two groups was not significant (χ^2 test, *p*-value 0.432). It shows that randomization was effective.