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## Prospective Study of the Evaluation of Autologous Blood Transfusion in the Treatment of Lateral Epicondylitis.

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### ABSTRACT

This study involves the effect of auto logous blood injection for patients who had degeneration of the origin of extensor carpi radialis brevis which was confirmed radio logically and by ultrasound examination and failed cortisone injections to the lateral epicondylitis. In This prospective longitudinal series involves pre-injection assessment of grip strength, pain, and function, using the patient-rated tennis elbow evaluation. In this study blood from the contra lateral limb is taken and injected into the affected limb with the help of ultrasound guidance and then the patient wore a customized wrist support for five days, after which they were commenced with stretching, strengthening and massage program with an occupational therapist. In These patients assessment was done after six months and then finally at 12 months after injection, using the patient-rated tennis elbow evaluation. 50 patients completed the study, showing significant improvement in pain; the worst pain decreased by two to five points out of a 10-point visual analogue for pain. Self-perceived function improved by 11–25 points out of 100. Women showed significant increase in grip, but men did not. Our study thus concludes that auto logous blood injection show significant improvement in pain and function in patients with chronic lateral epicondylitis, who did not have relief with cortisone injection.

**Keywords:** Lateral epicondylitis, auto logous blood injection, conservative treatment.

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## INTRODUCTION

Lateral epicondylitis or tennis elbow is a common condition that causes pain on the outside of the elbow, as well as pain and weakness during gripping. Approximately 1.3% of people in studied populations was found to have tennis elbow [1]. Obesity, smoking, and physical loading during activity, as well as playing tennis are associated with tennis elbow [1]. In ultra sound study long-term scarring has been shown on the extens or carpiradial is brevis muscle, which lifts the wrist, originates from the humerus [2].

Conservative line of treatments for tennis elbow are splinting, massage, injection of non steroidal anti-inflammatories, and alteration of tasks performed by the patient. Extra corporeal shock wave therapy has little or no benefit [3] in the treatment of lateral epicondylitis and that the evidence for orthotics and splints is not clear.

Post injection rest in a wrist support splint or sling was suggested in three studies; then normal activity was resumed by six weeks after injection. In three studies patients were told to perform only light duties or use modified lifting, for upto four weeks after injection. Stretching exercises were named in two studies; apart from these, post injection therapy was not described in detail.

The aim of this study is to evaluate the effect of ABI, splinting, and occupational therapy for patients with chronic LE, who have not been relieved by cortisone injection. [4], injection of non steroidal anti-inflammatories provides good immediate pain relief in high number of studies with variable recurrence rates of symptoms [4]. Though Corticosteroid injection has high relapse rates in pain relief, it is an alternative to non steroidal anti inflammatory injection [5].

Degenerated tendinous origin of extens or carpiradial is brevis [6] shows healing cascade on auto logous blood injection. The ABI is often done using ultrasound visualization, around Two to three milliliters of the patient's blood is removed from their contralateral arm which is mixed with one milliliter of lidocaine or marcaine and then injected into the origin of extens or carpiradialis brevis in a single appointment.

The physiological theory behind injecting auto logous blood into a degenerated tendon, post injection therapy regimes would need to support the initial healing phase thought to occur following injection [6].

## MATERIAL AND METHOD

Approval for this study was obtained from the Ethics and Compliance Committee of Bharath University. Informed consent was obtained from the patient above 18 years. Patients included in the study have experienced lateral epicondylitis as diagnosed by a physician (AP) for a minimum of six months, and they had to have had at Least one steroid injection before being offer edautologous Blood injection. Patients then underwent a diagnostic ultrasound to confirm their appropriateness for ABI; they had to show signs of tendon origin degeneration rather than inflammation, as diagnosed by one radiologist. Consecutive patients who fit these eligibility criteria were invited into the study.

The study patients were immobilized in a volar wrist splint. These patients were subjected to blood withdrawal before hand ,and the blood was mixed with bupivacaine and injected into the insertion site of Extensor carpiradialis tendon under CUSG guidance. They were then immobilized in the wrist splint for a minimum of 5 days and then were evaluated at 15 day interval. They were followed up for a minimum of 4 months at weekly intervals. They were also assed for their functional and pain levels at the 3 rd and 6 months after the 4months.We had asked the patients to fill up the tennis elbow evaluation questionnaire before the procedure and were later repeated at 6<sup>th</sup> and end of the 12<sup>th</sup> month.

## RESULTS

The study was conducted in 50 patients in our hospital. There were 15 females and the rest were males. They had a mean age of 46 years. All the patients were followed up till the end of the study and there were no drop outs. 10 patients also complained of pain in the shoulder and neck along with the elbow pain which treated before starting the study.

The patients had symptoms ranging from 6 months to 2 years. All the patients underwent conservative treatment by means of ultrasound, electrical therapy and medicines for a period of minimum of 3 months. All investigations were done prior hand to rule out cervico-brachial neuralgia.

There were no incidences of superficial deep infections. Out of the 50 patients 43 had improvement in the pain and functional levels. 3 patients had decrease in the pain levels of the patients. 4 patients had decrease in the functional levels.

### DISCUSSION

This study of chronic patients shows positive medium and long-term results from a single injection of autologous blood. The injection under ultrasound visualization accompanied with splinting, and occupational therapy were free of adverse events such as severe bruising or infection.

All patients involved in this study were symptomatic for at least six months and had failed cortisone injection treatment. Radiology reports suggested degenerative changes and “discontinuity” or tears, in the tendinous origin at the lateral epicondyle. This suggests that these patients had a more degenerative than inflammatory condition, despite their diagnosis being lateral epicondylitis.

Absence of randomization into a control group was an limitation of this study. There as on for this was that most patients were under worker’s compensation and the doctor treating them felt it un ethical to deny the injection to those with chronic and resistant symptoms. A comparison group was initially formed but these patients were unlike those in the study, in their duration of symptoms.

More recent studies of ABI for lateral epicondylitis have injected plasma-rich proteins (PRPs) which have been injected in the same manner as untreated autologous blood. Preparation of PRP involves withdrawing approximately 27 milliliters of anti-coagulated blood and placing it in a centrifuge, before adding anesthetic and injecting [2].

Platelet-rich plasma has positive effects, but in many studies these results have not been significantly different to ABI results [10,13].

We had selected patients in such a way that they had no associated comorbidities. We had excluded those patients who underwent surgery of the elbow earlier. [19,20].

A further we did have some problems in maintain the patient interest so that they could be followed up regularly but with proper motivation. All the 50 patients were followed up for a minimum of 12 months. All the patients were then followed up with the physiotherapist for their functional evaluation. 43 patients had improvement in their functional levels. 4 patients had to change their work habit to suit the residual pain they had.

### CONCLUSION

Our study thus proves effectively that autologous blood injection can be used as a safe and effective and cheaper method for treatment of refractory lateral epicondylitis compared to the use of PRP’s.

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