

## **Инъекцирование аутологичной крови в сравнении с инъекциями кортикостероидов при лечении «теннисного локтя»**

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### **Autologous blood injection versus corticosteroid for tennis elbow**

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**Цель.** Сравнить эффективность инъекций аутологичной крови и инъекций кортикостероидов при лечении «теннисного локтя». **Материалы и методы.** 25 мужчин и 35 женщин (средний возраст – 35,2 года) с «теннисным локтем» рандомизировали для проведения инъекций или аутологичной крови (2 мл аутологичной венозной крови, смешанной с 1 мл 2 % гидрохлорида ксилокаина), или стероидного препарата ацетонида триамцинолона (1 мл - 40 мг, смешанный с 1 мл 2 % гидрохлорида ксилокаина), которые делал один хирург. Проводили оценку до (0 день) и после (через 15, 30, 60 дней) лечения на наличие боли в локте, функции и силы сгибания в суставе. Наличие боли в локтевом суставе оценивали спустя один год. **Результаты.** Инфекции, разрывов сухожилия и нервно-сосудистых повреждений выявлено не было. Пять пациентов сообщали о наличии боли в течение вплоть до трёх дней после инъекции аутологичной крови. В обеих группах сила сгибания разительно улучшилась после лечения, но процесс восстановления отличался. По сравнению с инъекциями аутологичной крови при инъектировании кортикостероидного препарата восстановление происходило быстрее в первые 15 дней, а затем незначительно замедлялось до 60-го дня. После введения аутологичной крови облегчение боли, функция и сила сгибания стабильно улучшались и в конечном итоге становились более совершенными. **Заключение.** В сравнении с инъекциями кортикостероидного препарата инъекции аутологичной крови были более эффективными при продолжительном периоде контроля в плане облегчения боли, восстановления функции и силы сгибания. Именно так мы рекомендуем выполнять эту методику инъекционного лечения первого порядка, поскольку оно достаточно простое, недорогое и более эффективное. **Ключевые слова:** «теннисный локоть», аутологичная кровь, стероид.

**Purpose.** To compare the efficacy of autologous blood injection versus corticosteroid injection for Tennis elbow. **Materials and methods.** 25 man and 35 women (mean age, 35.2 years) presenting with Tennis elbow were randomized to receive either autologous blood injection (2 ml autologous venous blood mixed with 1 ml of 2 % xylocaine) given by a single surgeon. Patients were assessed before (days 0) and after (days 15, 30, 60) treatment for elbow pain, function and grip strength. Patients were followed up at 1 year to assess elbow pain. **Results.** Infection, tendon rupture and neurovascular damage were not found. 5 patients reported pain for upto 3 days after autologous blood injection. In both groups grip strength improved dramatically after treatment, but the mode of improvement differed. Compared with autologous blood injection corticosteroid injection improved at a faster rate over the first 15 days and then started to decline slightly until day 60. After autologous blood injection pain, function and grip strength improved steadily and were eventually better. **Conclusion.** Autologous blood injection was more effective over the long term follow up period than corticosteroid injection in improving pain, function and grip strength. That's way we recommend this as a first line injection treatment because it is very simple, cheap and more effective. **Keywords:** tennis elbow, autologous blood, steroid.

## INTRODUCTION

Tennis elbow is a common cause of lateral elbow pain. The prevalence rate is 1 % to 4 %, aged 35 to 55 years [1, 2]. It is said to be a degenerative process, rather than an inflammatory process, characterized by angiofibroblastic degeneration or hyperplasia within the common extensor tendon, especially affecting the extensor carpi radialis brevis.

Conservative treatment can be an option with rest, bracing, physical therapy, NSAID. Surgical treatment can be open,

percutaneous or orthopedic release of extensor origin [1, 2]. The most common treatment that is given by orthopedic surgeons is local injection or corticosteroid combined with local anesthetics. Autologous blood injection delivers blood borne cellular and humoral mediators to stimulate the regeneration process within the tendon<sup>3</sup>. Our study compared the efficacy of autologous blood injection versus corticosteroid injection for the treatment of tennis elbow.

## MATERIALS AND METHODS

The diagnosis of tennis elbow was made on the basis of pain in the lateral epicondyle, tenderness over the origin of extensor carpi radialis brevis 1 cm distal to the lateral epicondyle. During dorsiflexion of the wrist and middle finger the patient feels pain.

Between January 2013 and January 2014, 25 men and 35 women (mean age 35.2 years) presenting with lateral epicondylitis were randomized to get either autologous blood injection (2 ml of autologous venous blood collected from antecubital fossa of the ipsilateral side mixed with 1 ml of 2 %

xylocaine hydrochloride) or triamcinolone acetonide steroid injection 1 ml 40 mg mixed with 1 ml of 2 % xylocaine hydrochloride, given by a single orthopaedic surgeon. Patients were advised to abstain from heavy work, NSAID.

Patients occupations were individualized according to sedentary, light, medium, heavy and very heavy [7].

Patients were assessed before (day 0) and after (days 15, 30 and 60) treatment for elbow pain, function and grip strength. Patients were followed up at 1 year to assess elbow pain.

Table I

Characteristics of Both groups

Category	Autologous blood injection (N=15)	Triamcinolone Acetonide corticosteroid injection (N=15)	p value
Age (years)	35 ± 2.1	42 ± 7.3	0.095
No of males : females	7:28	6:20	0.400
No of left : right side	8:30	10:20	0.160

**Physical demands**

Sedentary	Light	Medium	Heavy	Very heavy
1	1	10	1	2
2	0	11	1	4

Table II

Group comparison: Elbow pain, function and grip strength

Category	Day 0	Day 15	Day 30	Day 60	p value
<b>Elbow pain:</b>					
Autologous blood injection	5.8±1.3	4.3±1.2	3.5±1.1	1.1±1.0	0.0001
Corticosteroid injection	5.7±1.2	1.6±0.8	1.5±1.0	2.7±1.0	0.0001
p value	0.578	0.0001	0.0001	0.0001	
<b>Function:</b>					
Autologous blood injection	65.6±11.7	50.2±15.2	30.3±10.2	18.2±8.1	0.0001
Corticosteroid injection	60.1±12.4	15.5±8.6	20.0±10.2	30.5±16.5	0.0001
p value	0.155	0.0001	0.001	0.0001	
<b>Grip strength:</b>					
Autologous blood injection	–	7.2±12.2	20.7±18.0	12.8±28.1	0.0001
Corticosteroid injection	–	23.2±20.8	18.3±20.7	18.0±20.7	0.0001
p value	–	0.001	0.647	0.016	

**RESULTS**

10 men and 15 women received an autologous blood injection. Whereas 15 men and 20 women received corticosteroid injection. All patients completed the 1 year follow up. The characteristics of both groups were similar (table 1). No complications were noted. In both groups elbow pain, function and grip strength improved dramatically after

treatment but the mode of improvement differed (table 2), compared with autologous blood injection, corticosteroid injection improved all 3 scores at a faster rate after the first 15 days and then started to decline slightly until day 60. After autologous blood injection all 3 scores (pain, function and grip strength) improved steadily and were much better.

**DISCUSSION**

Injection of autologous blood was more effective than corticosteroid injection in case of pain control, function and grip strength. The complete recovery rate at 2 months was 90 % after autologous blood injection and 55 % after corticosteroid injection.

Corticosteroid injection gives rapid recovery but temporary improvement in the first month [6].

Autologous blood injection stimulates the inflammatory cascade within the degenerated tendon by providing cellular and humoral mediators for regeneration [3]. Ultra sonogram shows tendon reparation. Histological studies

show non inflammatory angiofibroblastic tendinosis, neurovasculaization and mucoid degeneration in lateral epicondylitis, corticosteroid injection has superior short-term effects but no intermediate or long term effects [4, 5]. Platelet rich plasma has higher level of growth factors for stimulation of regeneration and yields similar results to autologous blood in terms of pain reduction and functional improvement at 6 months [7]. For this preparation and application of platelet-rich plasma requires specialized equipment, which is extensive and very time consuming.

**CONCLUSION**

Autologous blood injection is more effective than corticosteroid injection in improving pain, function and

grip strength. So that is why we recommend it as a first line treatment because it is easy to push and very effective.

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Рукопись поступила 04.05.2016.

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