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RESEARCH ARTICLE

ANALYZING SHORT AND LONG-TERM RESULTS OF VARIOUS NONSURGICAL TREATMENT MODALITIES IN MEDIAL EPICONDYLIT

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ABSTRACT

Background: Medial epicondylitis is a common disorder, although less common than tennis elbow but difficult to treat than lateral epicondylitis and as of now no consensus exists as to the most appropriate management strategy for medial epicondylitis.
Aim: To compare the outcome of different nonsurgical treatment modalities in medial epicondylitis.
Conclusion: In this study, although corticosteroid showed an early advantage but long-term follow-up results were better for autologous blood group.

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INTRODUCTION

Medial epicondylitis also known as golfers elbow is a clinical entity characterised by pain in the medial aspect of elbow.It is similar to lateral epicondylitis, although much less common and more difficult to treat (Cambells operative orthopaedics). The accumulated pathological evidence suggests that the process is associated with fibrillary degeneration of collagen and angiofibroblastic hyperplasia at the orgin of flexor-pronator mass (Ollivierre *et al.,* 1995), microfragmentation or tears of the tendon (Vangsness, 1991), accumulation of vascular granulation tissue (Dijs *et al.,* 1990) all of which are associated with secondary inflammatory changes. The most common mechanism of golfers elbow is overuse.Any repitative process which places prolonged strain over an unconditioned muscle is likely to result in muscle strain, ligament sprain or any other injury (Kaminski *et al.,* 2000). Another common mechanism is poor biomechanics of golf. Pain is the most obivious symptom associated with golfers elbow, experienced most over the medial aspect of elbow. Weakness, stiffness, tingling are less common symptoms associated with this injury. Currently no general consensus exists as to the most appropriate management strategy for medial epicondylitis. The purpose of this study was to evaluate the results of various non- surgical treatment options used in medial epicondylitis.

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MATERIALS AND METHODS

After getting the ethical board approval, this study was conducted over a period of 3 years from 2012-2015.one hundred and twenty patients of medial epicondylitis in the age group of 25-50 years were distributed into three groups randomly (A,B,C) based on the treatment modality received. Block randomisation was used to prevent unequal treatment group sizes and thus each group included 40 patients. Patients in the age group of 25-50 of either sex with clinically diagnosed medial epicondylitis with no history of trauma were included in the study. Patients with history of surgical intervention over medial aspect of elbow, compressive myelopathy, autoimmune disease, neck symptoms, rheumatoid arthritis were excluded from the study. With regard to age, gender occupation groups were comparable. Visual analogue scale (VAS) pain score pre-procedure was completed by each patient at the end of each follow-up.

Under all aseptic precautions the procedure was done using 21 guageneedle. A 2ml of autologous blood, steroid and 5% dextrose were used after mixing with 1ml of lidocaine to each. Written informed consent was taken from all the patients. Just distal to the most tender spot, the needle was inserted with a single skin penetration followed by multiple deep tissue insertions (peppering technique) keeping an eye over ulnar nerve as well. None of the patients were prescribed any splints

or orthotics or any additional drug during follow-up and advised to avoid any heavy labor for the first week following treatment. All the patients completed the VAS pain scores at 4weeks and 6months follow-up.

RESULTS

Out of total 120 patients 74 were males and 46 were females with an average age of 38 years. Each group contained 40 patients each.

Table 1. Mean VAS pain scores at various stages of treatment in the three goups Stage Mean VAS scores

	Steroid (Group A)	Autologous blood (Group B)	5% dextrose (group C)
Preprocedure	7	8	7
4 weeks	3	5	6
6 months	5	2	5

VAS = visual analogue scale

Table 2. Individual data in group A patients

	Pre-procedure	4 weeks	6 months
Mean	7	3	5
SD	0.75	1.01	1.13
SEM	0.12	0.16	0.18
N	40	40	40
90%CI	6.80-7.20	2.73-3.27	4.70-5.30
95%CI	6.76-7.24	2.68-3.32	4.64-5.36

SD=Standard deviation, SEM =Standard error of mean, CI= Confidence interval

Table 3. Individual data in group B patients

	Preprocedure	4weeks	6 months
Mean	8	5	2
SD	0.72	1.13	0.72
SEM	0.11	0.18	0.11
N	40	40	40
90%CI	7.81-8.19	4.70-5.30	1.18-2.19
95%CI	7.77-8.23	4.64-5.36	1.17-2.23

SD=Standard deviation, SEM =Standard error of mean, CI= Confidence interval

Table 4. Individual data in group C patients

	Pre-procedure	4 weeks	6 months
Mean	7	6	5
SD	0.75	1.16	1.13
SEM	0.12	0.26	0.18
N	40	40	40
90%CI	6.80-7.20	5.56-6.44	4.70-5.30
95%CI	6.76-7.24	5.47-6.53	4.64-5.36

A significant improvement in the VAS scores were seen in Group A and B. Patients in Group C showed least improvement (Table 1). For Group A (steriod) the mean pre-procedure VAS score was 7, for Group B (autologous blood)it was 8 and for Group C(dextrose) it was 7. The mean VAS scores for the steroid, autologous blood and 5% dextrose groups were 3,5 and 6 at 4 weeks and 5,2 and 5 at 6 months respectively (Table 1). Using graphpad .com online website statistical analysis was done. Statistical results were derived using unpaired students t test. The data and statistical calculations is demonstrated in Tables 1-5. The difference in the VAS scores was statistically significant at 4 weeks (p=0.001) in the group A (Steriod) but not significant at 6 months (p=1.00) as compared to dextrose group. However statistically significant difference ia noted both at 4 weeks and 6 months in the group B (Autologous blood) with p=0.002/0.001 as depicted in tables. Table 1: mean VAS pain scores at various stages of treatment in the three goups

DISCUSSION

Medial epicondylitis is an inflammatory and degenerative process that occurs at the origin of flexor carpi radialis and pronator-teres (flexor-pronator mass). Golf may not be the only activity to cause medial epicondylitis but the injury received its name coz of greater frequency of injury occurring in this sport (Hume *et al.,* 2006). Patients usually present with pain over the medial aspect of elbow, with physical examination area of maximal tenderness approximately 5 mm distal and anterior to the midpoint of the medial epicondyle and becoming worse with resisted forearm pronation or wrist flexion. Differential diagnosis for medial epicondylitis includes cubital tunnel syndrome, MCL injury, The use of injection in the treatment modality iis common and multiple have been used. Although local steroids are associated with pain relief but are also known to cause lipodystrophy (Edwards, 2003; Connell *et al.,* 2006). The injection of autologous blood has been performed for tendinopathies including lateral epicondylitis (Edwards, 2003; Connell *et al.,* 2006), plantar fasciitis (Logan *et al.,* 2006; Lee and Ahmad, 2007) and patellar tendinopathy (Edwards, 2003; James *et al.,* 2007). In our studypatients in group A receiving steroid showed an early response with VAS pain scores decreasing from a mean of 7 to a mean of 3 at 4 weeks. But there was recrucence of symptoms with VAS pain score being 5 at final follow-up. The group receiving autologous blood showed modest improvement at 4weeks but at 6 months follow-up VAS scores improved significantly from a mean of 8 to mean of 2.Thus our study reveals better results with steroids in short-term and with autologous blood in long term.

Conclusion

According to our study,although steroid showed an early advantage over autologous blood group,but at 6 months long term follow-up,results with autologous blood were much

Table 5. Statistical analysis in the three groups Group A vs C Group B vs C Group A vs B

	4 weeks	6 months	4 weeks	6 months	4 weeks	6 months
P value	0.001	1.00	0.0022	0.001	0.001	0.001
95%CI	-3.60 to -2.39	-0.50to 0.50	-1.63 to -0.37	-3.42 to -2.58	-2.48to -1.52	-3.42 to -2.58
T	9.86268	0.0	14.2214	14.2214	8.40	14.22
Df	78	78	78	78	78	78
Standard error of difference	0.305	0.255	0.211	0.211	0.241	0.211

CI= Confidence interval, Df =Degree of freedom

better. Therefore further research studying the effect of combination of steroid followed by autologous blood is proposed.

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