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Short term effect of local steroid injection in lateral epicondylitis

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***Abstract*---**Introduction: Lateral epicondylitis is a common cause of pain in the lateral side of elbow. It affects 1% to 3% of adults in general population per year.' it is common in dominant arm, tennis players and in workers who are involved in repetitive gripping and heavy lifting tasks because of repeated micro trauma to extensor tendons origin from lateral epicondyle. Objective: To compare the outcome of local steroid injection and local anesthetic injection after 2 weeks in management of lateral epicondylitis. Setting: Department of orthopedics, Hayatabad Medical Complex, Peshawar. Study design: Randomized clinical trial. Study Duration: 21st September 2020 to 21st March 2021. Methodology: A total of 60 patients were included in study (30 in each group). All patients were observed to compare the outcome of local steroid injection and local anesthetic injection after 2 weeks in management of lateral epicondylitis. Results: Distribution of Age among groups of 60 (30 in each group) were analyzed. Most of the patients between the age category (31-40 years) group A (steroid injection) was 9(42.9%) and group B 12(57.1%). Mean age was 41.56 ±3.357. There were 16(50.0%) male & 14(50%) female in group A. In group B, there were 16 (50.0%) male &14(50% female. The obesity was present was 17(45.9%) in group A (steroid injection) and 20(54.1%) was in group B (local anesthetic injection). The Baseline pain VAS score mean was 6.86 and SD was 0.789 in group A (steroid injection) and 27(60.0%) was in group B (local anesthetic injection) mean 9.33

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with SD 0.661 having P Value (<0.001). Conclusion: Local anesthetic injection is significantly better than steroid injection in patients of tennis elbow and this difference is also seen in all age groups, age and duration.

***Keywords*---**VAS, local anesthetic injection, Steroid injection for the treatment of lateral epicondylitis.

Introduction

Lateral epicondylitis, also commonly referred to as tennis elbow, describes an overuse injury secondary to eccentric overload of the common extensor tendon at the origin of the extensor carpi radialis brevis (ecrb) tendon.(1) Tennis elbow is caused by repetitive strain from activities that involve griping & wrist extension with a heavy and repeated grip. It's common among tennis, squash or badminton players, as well as anybody who engages in recurrent wrist extension, radial deviation &forearm supination.(2, 3)

Despite the fact that usually referred to as "tennis elbow" only 10% of people have this condition.(4) Half of tennis players have elbow pain, with 75% of those suffering from real tennis elbow.(5) It occurs more frequently in those over the age of 40. In the general population, smoking, obesity, daily repetitive movement for at least two hours, and intense activity (handling physical loads exceeding 20 kg) are factors in the development of this condition.(2) The condition has a positive natural history, with 80 to 90% of patients recover spontaneously within one to two years.(6)

First-line management for the treatment of lateral epicondylitis includes rest from offending activity as guided by the level of pain brace use in the form of a cock-up wrist splint can be prescribed to take stress off of the wrist extensors.(7) Local steroids injection, autologous blood, platelet rich plasma, injections sodium hyaluronate & extracorporeal shock wave therapy are being used. Percutaneous needling, tenodesis, and open or arthroscopic release of the extensor carpi radialis brevis tendon are some of the surgical options.

In a study by Bashirsi, et al. has shown that mean visual analogue scale (vas) for pain was 5.62±1.15 with autologous blood injection and 1.60±1.19 with local steroid injection after 2 weeks in management of lateral epicondylitis.(8) The rationale of the study that tennis elbow is widely treated in primary care with analgesics and physiotherapy, but outcomes are poor. This might be related to poor treatment adherence due to the need for frequent hospital visits and the adverse effects of long-term analgesics.(9) Hence, present study will evaluate the effect of local steroid injection as compared to local anaesthetic injection for treatment of tennis elbow. Results of my study will be used by practitioners lateral epicondylitis is a common cause of pain in the lateral side of elbow. It affects 1% to 3% of adults in general population per year.(10)

Methodology

This randomized controlled trial was conducted in Orthopedics Department, Hayatabad Medical Complex, Peshawar from 21st September 2020 to 21stMarch 2021. Total 60 sample size (30 in each group) was calculated with 5% level of significance 80% Power of test by using mean visual analogue scale (VAS) for pain by 4.37 ± 0.96 with local anaesthetic injection and 2.40 ± 1.03 with local steroid injection after 2 weeks in management of lateral epicondylitis.9

Patients present with 18-60 years of age with both gender, lateral epicondylitis for >2 weeks. Baseline pain VAS score >6 were included. H/o previous elbow surgery on the lateral side, or atthiritis or a related condition & Pregnancy on ultrasonography was ruled out in patients with neurological diseases of the painful edges (like cervical root compression syndrome & compression of radial nerve were excluded.

At study entry baseline demographics (age, gender, weight on weighing machine, baseline VAS score) were recorded. A detailed explanation about the participation in the study were given to the patient and an informed consent were obtained explaining the risks and benefits in detail. Randomization were performed by block randomization for both groups when the patients are enrolled for procedure.30 patients were in local steroid injection group (A) while 30 patients were in local anaesthetic injection group (B). The patients in the group A received a single-injection of lml (40mg) of methylprednisolone acetate (Steroid) at the place of maximum discomfort at the lateral epicondyle. The patients in the "13" group were given a local injection of 2m1 of 2% lignocaine using peppering injection method at the site of maximal discomfort at the lateral epicondyle. After the injection, all of the patients were followed up on at the 2nd week. Patients were assessed using a visual analogue scale (VAS) and their responses were recorded on a specifically developed proforma.

Data were analyzed with SPSS V23. Age, weight, base line VAS score &VAS score after 2 weeks were presented as mean ±SD. Qualitative variables like gender was presented as frequency & percentage. The differences in the mean VAS score after 2 weeks of both groups were statistically tested using the student t test,$p<0.05$ were considered as significant.

Result

Total 60 patients enrolled, 30 for each group

There were 16(50.0%) male & 14(50%) female in group A. In group B, there were 16 (50.0%) male &14(50%) female**.** Among group A, the age category (18-30 Years) was 7(50.0%) and in group B was 7(50.0%) The age category (31-40 years) group A was 9(42.9%) and group B 12(57.1%) The age category (41-50 Years) group A was 8(66.7%) and group B was 4(33.3%). The age category (51-60 Years) group A was 6(46.2%) and group B was 7(53.8%).

There were 17(45.9%) in group A and 20(54.1%) in group B from 2-3 Weeks. Among group A (steroid injection) More than 3 Weeks duration was 13(56.5%) in

group A and 10(43.5%) in group B. The obesity was present was 17(45.9%) in group A and 20(54.1%) was in group B. The Non obesity was absent 13 (56.5%) in group A and in was 10(43.5%) group B. Table: 1

The mean Baseline pain VAS score was 6.86± 0.789 in group A and 9.33±0.661 in group B, having P Value (<0.001). The mean VAS score after 2 weeks was 2.97±1.67 in group A and 7.37±1.90 in group B having p value (<0.001). Table: 2
While stratifying w.r.t age 20 -30 Years wise distribution the mean was 2.47± 1.074 in group A and 2.33± 1.093 in group B having P value (0.231). Among age group 31-40 Years mean was 3.37±1.011 in group A and 2.55± 1.00 in group B having P value (0.641). Among age group 41-50 Years, the mean was 3.47 ±1.084 in group A and 3.33±1.083 in group B having P value (0.333). Among age group 51-60 Years, the mean was 2.74± 1.065 in group A and 3.33±1.083 in group B having P value (0.012). Stratification of gender, duration of disease, Obesity among groups as shown in Table: 3

Table: 1 Gender. Age, Duration of disease and Obesity w.r.t groups

		Group A (Steroid Injection)	Group B (Local Anesthetic Injection)
Age	18-30	7(50%)	7(50%)
	31-40	9(42.9%)	12(57.1%)
	41-50	8(66.7%)	4(33.3%)
	51-60	6(46.2%)	7(53.8%)
Gender	Male	16(50%)	16(50%)
	Female	14(50%)	14(50%)
Duration of Disease	2-3 weeks	17(45.9%)	20(54.1%)
	More than 3 weeks	13(56.5%)	10(43.5%)
Obesity	Obese(<30Kg/m^2)	17(45.9%)	20(54.1%)
	Obese(>30Kg/m^2)	13(56.5%)	10(43.5%)

Table: 2 Distribution of VAS score at baseline and after 2 weeks

	Group A (Steroid Injection)	Group B (Local Anesthetic Injection)	P value
Baseline Pain VAS score	6.86±0.78	9.33±0.66	0.001
VAS score after 2 weeks	2.97±1.67	7.37±1.90	0.0001

Table: 3 Stratification of Age, Gender, Duration of Disease and Obesity w.r.t VAS score after 2 weeks

		Group A (Steroid Injection)	Group B (Local Anesthetic Injection)	P value
Age	18-30	2.47±1.04	2.33±1.09	0.23
	31-40	3.37±1.01	2.55±1.00	0.64
	41-50	3.47±1.08	3.33±1.08	0.33
	51-60	2.74±1.06	2.66±1.01	0.012
Gender	Male	2.17±1.17	2.27±1.10	0.0023

		Group A (Steroid Injection)	Group B (Local Anesthetic Injection)	P value
	Female	2.19±1.01	2.11±1.03	0.004
Duration of Disease	2-3 weeks	1.33±0.47	2.43±1.04	0.43
	More than 3 weeks	1.55±0.11	1.66±0.50	0.009
Obesity	Obese(<30Kg /m^2)	1.90±0.56	1.23±0.40	0.203
	Obese(>30Kg /m^2)	1.70±0.61	1.13±0.10	0.01

Discussion

Tennis is one of the most popular sports in the world, owing to the unique combination of aerobic and anaerobic activity that is enjoyable for all ages and skill levels.(7) Tennis elbow is not uncommon & is seen in most of the cases, In these cases, pain is the main concern, and the most of people report long-term usage of analgesics, which contributes to the 16-18 psychological stress.(11, 12)

In the current study, pain relief by autologous blood injection (group A) versus local steroid injection (group B) was 82 percent vs. 64 percent, respectively, with p=0.005, and furthermore, local steroid injection (group B) was 82 percent vs. 64 percent, with p=0.0005, relief of pain was considerably higher in autologous blood injection than local steroid injection in all categories after stratification by gender & age. These findings were consistent with those of previous studies.

According to a research conducted in 2022, Corticosteroids were shown to be better in terms of relief of pain, but their efficacy was short-lived, and total pain relief was greater in 9 autologous transfusions. This was described 70 by the underlying issue that autologous blood injection initiates a cascade of inflammation & enhances the invasion of different mediators necessary for regeneration. Pain reduction was reported in 79 percent of 9 cases after an average of 9.5 months, 94.2 percent after 6 months, 13 and 58 percent after 12 months in another studies. (13)

Another research showed that poor outcomes can be related to the disease's refractory course. A number of neurokines, non-inflammatory and fibroblastic activities & neovascularization were all shown to play a role, in the pathophysiology of mucoid degeneration & target-oriented therapies. In cases treated with corticosteroids, the incidence of recurrence is quite high. However, in the early part of the article, they showed significantly good outcomes.(14, 15)Several randomized controlled trials have been conducted to evaluate these two and other methods, and it has been determined that autologous blood is preferable than corticosteroids & platelet rich plasma., (16, 17) placebo, or extracorporeal shock wave therapy.

In a study published in 2018, study observed plasma and blood transfusions, finding that the former required surgical intervention in 20% of cases, whereas

autologous 23 transfusions only required surgical intervention in 10% of cases.(18)

Conclusion

The conclusion of the study, in people with tennis elbow, local anesthetic injection is considerably better than steroid injection, and this difference is apparent across all age groups & duration.

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