ABSTRACT

The most well-known abuse condition is identified with inordinate wrist expansion and generally alluded to as tennis elbow, however it is in reality increasingly regular in non-tennis players. METHODS- A prospective, comparative study was conducted with 50 patients after Ethical approval. Quantitative data is presented with Mean and Standard deviation. Examination among the investigation bunches is finished with the assistance of unpaired t test according to consequences of ordinariness test. Majority of the patients (80%) in Group A and (76%) in Group B were from the age group of 31-40 years. The mean age in Group A was 36.4±5.44 years and in Group B were 36.8±5.87 years. Majority of the patients in both groups were female. There was dominance of right side (68% and 72%) as compared to left side (32% and 28%) in both groups. The mean duration of symptom in Group A was 2.24±0.72 months as compared to 1.92±0.81 months in Group B. 20% and 12% patients in Group A had Diabetes Mellitus and Hypertension respectively whereas 16% and 24% patients in Group B had Diabetes Mellitus and Hypertension respectively. The mean baseline VAS score in Group A was 7.6±0.51 and Group B was 7.7±0.38 which decreased to 5.1±0.81. The mean baseline MGS score in Group A was 74.6±10.32 which increased to 91.6±4.08 in 2 weeks. And in Group B was 74.5±10.31 which increased to 99.8±2.646 in 2 weeks. The MGS score improved more in Group B after 2 weeks (p=0.005), 4 weeks (p=0.002) and 6 weeks (p=0.022). However, toward the finish of 3 months, a half year and a year, improvement in MGS Score was fundamentally better in Group A as compared to Group B.

INTRODUCTION

The most widely recognised abuse condition is identified with over the top wrist augmentation and generally alluded to as tennis elbow. Yet, it is in reality, increasingly inherent in non-tennis players. It is additionally ordinarily alluded to as horizontal epicondylitis. However, this usually is a misnomer. It is because a tiny assessment of the ligaments doesn't give indications of aggravation. It is rather angiofibroblastic degeneration and collagen disorder. Light microscopy uncovers both an overabun-
dance of fibroblasts and veins that are reliable with angiogenesis (Bisset et al., 2006).

The ligaments are generally hypovascular proximal to the ligament addition that may incline the ligament to hypoxic ligament degeneration. And it has been entangled in the aetiology of tendinopathies (Altan and Kanat, 2008). Most commonly, the essential pathology is tendinosis of the extensor carpi radialis brevis (ECRB) ligament 1-2 cm distal to its connection on the horizontal epicondyle (Jafarian et al., 2009).

Tennis elbow influences 1-3% of everyone and 15% of labourers in danger industries (Allander, 1974; Bot, 2005). Clinical specialists following a proof-based methodology will discover minimal elevated level proof for treating tennis elbow. Ongoing investigations showed that corticosteroid infusions were more useful inside three weeks to about a month and a half then kept a watch out (control) or medications yet that by three to a year infusions were no better than control (Chiang et al., 1993; Kurppa et al., 1991; Ranney et al., 1995). A program of back rub, ultrasound, and exercise was additionally not the same as control (Walker-Bone et al., 2004). In late distinguished starters, there is proof of beneficial impacts of elbow control (preparation with development) and exercise (Smidt et al., 2002; Hay et al., 1999). Besides, new efficient audits report that low quality of techniques is an issue with a significant part of the distributed research (Kurppa et al., 1991; Smidt, 2005).

Horizontal epicondylitis is a typical abuse state of the extensor ligaments of the lower arm. It is now and then called tennis elbow, even though it can happen with numerous exercises. The condition influences people similarly and is increasingly regular in people 40 years or more seasoned. Though horizontal epicondylitis is predominant, instead of choosing different treatment technique, watchful waiting is a sensible alternative. This is so even after going through any top-notch clinical preliminaries. Topical non-steroidal mitigating drugs, corticosteroid infusions, ultrasonography, and iontophoresis with non-steroidal calming drugs seem to give transient advantages. The utilisation of an inelastic, nonarticular, proximal lower arm lash (tennis elbow support) may improve work during day by day exercises. Dynamic obstruction activities may give the unassuming middle of the road term results. The proof is blended on oral non-steroidal mitigating medications, activation, and needle therapy. Patients with stubborn side effects may profit by careful mediation. Extracorporeal stun wave treatment, laser treatment, and electromagnetic field treatment don’t have all the earmarks of being compelling.

Lateral epicondylitis is one of the most widely recognised abuse condition found in essential consideration, with a yearly frequency of 1 to 3 per cent; the state influences people equally. Patients with horizontal epicondylitis are regularly 40 years or more seasoned and have a background marked by dreary movement during work or amusement. The condition is called tennis elbow in some cases, even though it frequently happens with exercises, for example, other racket sports and golf. Dull wrist dorsiflexion with supination and pronation causes abuse of the extensor ligaments of the lower arm and consequent microtears, collagen degeneration, and angiofibroblastic expansion. On the off chance that untreated, parallel epicondylitis continues for a normal of six to 24 months (Altan and Kanat, 2008).

The utilisation of corticosteroid infusions to treat sidelong epicondylitis is progressively discouraged (Bisset et al., 2006; Altan and Kanat, 2008) mostly because proof of long haul viability has not been found, and because of high repeat rates (Jafarian et al., 2009; Walker-Bone et al., 2004). In a randomised controlled preliminary with 1-year follow-up, repeat was evident in 72% of patients getting corticosteroid infusion contrasted and 8% after physiotherapy (Jafarian et al., 2009).

Joining corticosteroid infusion with physiotherapy to make up for the poor long haul results of corticosteroid infusions has been assessed distinctly in 2 little studies (Chiang et al., 1993; Kurppa et al., 1991). One of the investigations detailed no advantage at a half year after corticosteroid infusion when added to ice rub in addition to physiotherapy prescribed exercise (Chiang et al., 1993). The other examination found no considerable impact of a dynamic obstruction preparing and graduated exercise program when added to corticosteroid infusion; be that as it may, this investigation was underpowered, announced a high dropout rate, and didn’t evaluate results past seven weeks (Kurppa et al., 1991). The longterm impacts of corticosteroid infusion joined with physiotherapy are not known.

Rather than the poor long haul results, corticosteroid infusions produce significant relief from discomfort in the short-term, which is nonsensical, given their mitigating method of activity compared against the absence of fiery markers in tendinopathy (Smidt et al., 2002; Smidt, 2005). A conceivable clarification is that these corticosteroid infusions are related to stable fake treatment effects (Vicenzino, 2003).

Treatment can be moderate (keep a watch out',
movement alteration, rest, supporting, active recu-
erperation, non-steroidal mitigating medications, and
neighbourhood infusions) or careful (open, per-
cutaneous, or arthroscopic arrival of the extensor
beginning, debridement and denervation of the hor-
izontal epicondyle, and anconeus turn) (Allander,
1974; Bot, 2005). The most popular treatment
is neighbourhood infusion of corticosteroid joined
with nearby sedatives. Autologous blood infusion
conveys blood-borne cell and humoral middle peo-
dle to invigorate the recovery procedure inside the
tendon (Walker-Bone et al., 2004).
Platelet-rich plasma is a decent wellspring of
numerous development factors and cytokines like
PDGF, TGF-beta, IGF-1, IGF-2, FGF, VEGF, EGF. Ker-
atinocyte development factors and connective tis-
sue development factors are one of the better
approaches for treating this agonising and debilitat-
ing condition. It has indicated promising outcomes
in numerous examinations when contrasted with
steroid infusion of moderate treatment. Platelet-
rich plasma application being in an examination
stage, more investigations are required before it
very well may be acknowledged as extraordinary
compared to other and protected method of treat-
ment for Lateral epicondylitis/Tenis Elbow. Hence
the present study was done at our tertiary care cen-
tre. The investigation was to evaluate the efficacy of
local injection of platelet-rich plasma vs local injection
of methylprednisolone acetate in the manage-
ment of lateral epicondylitis.

MATERIALS AND METHODS
A prospective, comparative study was conducted
with 50 patients to evaluate the efficacy of local
injection of platelet-rich plasma vs local injection
of methylprednisolone acetate in the management of
lateralepicondylitis.
The ethics committee of the University approved the
study.
Study Design: A prospective study.
Study duration: 2 years
Sample Size: 50 cases -
Materials required for preparation & injection of
Platelet Rich Plasma:
1. Centrifuge Machine
2. BD Vacutainer® Blood collection needle and
adapter
3. BD Vacutainer® ACD-A tubes
4. Sterile tubes without anticoagulant
5. 10cc Sterile Syringe with needle
6. Sterile needle 18 no.
7. 8.4 % Sodium Bicarbonate
8. Betadine Solution
9. Savlon
10. Spirit

Statistical Analysis
Quantitative, Qualitative data and Association
among the study groups are assessed.

RESULTS AND DISCUSSION
A prospective, comparative study was conducted
with 50 patients to evaluate the efficacy of local
injection of platelet-rich plasma vs local injection
of methylprednisolone acetate in the management of
lateral epicondylitis.

Distribution of patients according to Age
Majority of the patients (80%) in Group A were from
the age group of 31-40 years followed by 16% from
the age group of 41-50 years and 4% from the age
group of 21-30 years. The mean Age in Group A was
36.4±5.44 years.

Distribution of patients according to Laterality
The right side was dominant (68% and 72%)
and the left side (32% and 28%) in both groups. There
was no significant association between the groups
as per the Student t-test, there
was no significant association between the groups
(p=0.804).

Distribution of patients according to Mean Dura-
tion of Symptom
The mean duration of symptom in Group A was
2.24±0.72 months as compared to 1.92±0.81
months in Group B. There was no significant associ-
ation between the groups as per the Chi-Square test
(p=0.146).
Distribution of patients according to Comorbidities

20% and 12% patients in Group A had Diabetes Mellitus and Hypertension, respectively, whereas 16% and 24% of patients in Group B had Diabetes Mellitus and Hypertension, respectively. There was no significant association between the groups as per the Chi-Square test (p>0.05).

Comparison of VAS Score within Group A during the Follow-up Period

The mean baseline VAS score in Group A was 7.6±0.51, which decreased to 5.9±0.70 in 2 weeks with a mean difference of 1.7. This difference was statistically significant as Student t-test (p=0.001). Similarly, the VAS score reduced significantly in 4 weeks, six weeks, three months, six months and 12 months follow-up period.

Comparison of VAS Score within Group B during the Follow-up Period

The mean baseline VAS score in Group B was 7.7±0.38, which decreased to 5.1±0.81 in 2 weeks with a mean difference of 2.6. This difference was statistically significant as Student t-test (p=0.001). Similarly, the VAS score reduced significantly in 4 weeks, six weeks, three months, six months and 12 months follow-up period.

Comparison of VAS Score between Group A and Group B during Followup Period

The score improved two weeks in Group B and four weeks, however, at the end of 6 weeks, 12 weeks, 24 weeks and 52 weeks, improvement in pain was significantly better in Group A as compared to Group B.

Comparison of Maximum Grip Strength (MGS) Score within Group A during the Follow-up Period

The mean baseline MGS score in Group A was 74.6±10.32, which increased to 91.6±4.08 in 2 weeks. This difference was statistically significant as a Student t-test (p=0.001). Similarly, the MGS score improved significantly in 6 weeks, 12 weeks, 24 weeks and 52 weeks follow-up period.

Comparison of Maximum Grip Strength (MGS) Score within Group B during the Follow-up Period

The mean baseline MGS score in Group B was 74.5±10.31, which increased to 99.8±2.646 in 2 weeks. This difference was statistically significant as Student t-test (p=0.001). Similarly, the MGS score improved significantly in 6 weeks, 12 weeks, 24 weeks and 52 weeks follow-up period.

Comparison of Maximum Grip Strength (MGS) Score between Group A and Group B during the Follow-up Period

The MGS score improved more in Group B after two weeks (p=0.005), four weeks (p=0.002) and six weeks (p=0.022). However, at the end of 3 months, six months and 12 months, improvement in MGS Score were significantly better in Group A as compared to Group B.

In the present study, majority of the patients (80%) in Group A were from the age group of 31-40 years followed by 16% from the age group of 41-50 years and 4% from the age group of 21-30 years. The mean Age in Group A was 36.4±5.44 years. Majority of the patients (76%) in Group B were from the age group of 31-40 years followed by 20% from the age group of 41-50 years and 4% from the age group of 21-30 years. The mean Age in Group B was 36.8±5.87 years. Yadav R et al. (Yadav, 2015) patients were 30 to 39 age. In our study, the majority of the patients in both groups were female. There were 32% and 24% male patients in Group A and Group B respectively, whereas female patients constituted 68% and 76% of the study group, respectively. Ono Y et al. (Ono et al., 1998) have reported female preponderance. However, Shiri R et al. (Shiri et al., 2006) found 1.3% predominance of side-long epicondylitis without any gender difference. Khaliq A et al. (Khaliq et al., 2015) randomised controlled study comparing the treatment modalities of lateral epicondylitis regarding help with discomfort found mean Age was 33.9±10.3 years. Arik HO et al. (Arik et al., 2014) randomised controlled investigation looking at the viability of autologous blood infusion versus corticosteroid infusion for horizontal epicondylitis discovered 11 men and 29 ladies (mean±standard deviation [SD] Age, 43.7±7.8 years) got an autologous blood infusion. However, ten men and 30 ladies (mean±SD Age, 46.7±8.4 years) got a corticosteroid infusion. In the present study, the right side was dominant (68% and 72%) as compared to the left side (32% and 28%) in both groups. The mean duration of symptom in Group A was 2.24±0.72 months as compared to 1.92±0.81 months in Group B. In our study, 20% and 12% patients in Group A had controlled Diabetes Mellitus, and Hypertension, respectively whereas 16% and 24% of patients in group B had controlled Diabetes Mellitus and Hypertension respectively. There was no significant association between the groups as per the Chi-Square test (p>0.05).

The mean baseline VAS score in Group A was 7.6±0.51, which decreased to 5.9±0.70 in 2 weeks,
with a mean difference of 1.7. This difference was statistically significant as Student t-test (p=0.001). Similarly, the VAS score reduced significantly in 4 to 6 weeks, 12 weeks, 24 weeks and 52 weeks follow-up period. The mean baseline VAS score in Group B was 7.7±0.38, which decreased to 5.1±0.81 in 2 weeks, with a mean difference of 2.6. This difference was statistically significant as Student t-test (p=0.001).

Similarly, the VAS score reduced significantly in 4 to 6 weeks, 12 weeks, 24 weeks and 52 weeks follow-up period. The VAS score was improved after two weeks in Group B and four weeks, however end of 6 weeks, three months, six months and 12 months, improvement in pain was significantly better in Group A as compared to Group B. Yadav R et al. (Yadav, 2015) Khaliq An et al. (Khaliq et al., 2015) randomised controlled examination contrasting the treatment modalities of sidelong epicondylitis as far as to help with discomfort accurate mean gauge visual simple score in bunch A were 6.5±1.2, and in bunch B it was 6.7±1.4. In bunch A, 74.5% of patients introduced in moderate torment class and 25.5% introduced in extreme agony classification. In bunch B, 70.6% introduced in moderate with 29.4% introduced in severe agony classification. On development, the mean agony score in bunch A was 4.0±2.6, and in bunch B, it was 3.5±2.61. Gathering A demonstrated vivacity in 52.9% patients and gathering B indicated adequacy in 82.3% (p=0.001).

In our study, the mean baseline MGS score in Group A was 74.6±10.32, which increased to 91.6±4.08 in 2 weeks. This difference was statistically significant as Student t-test (p=0.001). Similarly, the MGS score improved significantly in 4 weeks, six weeks, three months, six months and 12 months follow-up period.

The mean baseline MGS score in Group B was 74.5±10.31, which increased to 99.8±2.646 in 2 weeks. This difference was statistically significant as Student t-test (p=0.001). Similarly, the MGS score improved significantly in 4 weeks, six weeks, three months, six months and 12 months follow-up period.

In our study, the MGS score improved more in Group B after two weeks (p=0.005), four weeks (p=0.002) and six weeks (p=0.022). However, at the end of 3 months, six months and 12 months, improvement in MGS Score were significantly better in Group A as compared to Group B. Yadav R et al. (Yadav, 2015) unavoidable examination taking a gander at the suitability of close by a mixture of platelet-rich plasma versus corticosteroids in regards to help with distress, hold quality and functional improve-ment declared quantifiably necessary recovery (p < 0.05) was noted in each parameter at 15 days, multi-month and multi-month follow up from benchmark regards in both the get-togethers. Exactly when the social occasions were differentiated and each other, bundle B had quantifiably immense (p<0.05) and favoured improvement over Group An at 15 days and multi-month follow up period while at multi-month follow up pack A would do well to upgrade for each parameter over Group B (p< 0.05). None of the patients declared any troublesome effects. Neighbourhood corticosteroid infusion is one of the commonest obtrusive intercessions with steady and acceptable outcomes.

Consequently, it has gotten the best quality level for correlation of more up to date treatments. Altay T et al. (Altay et al., 2002) concentrate on Local infusion treatment for sidelong epicondylitis inspected 13 randomised controlled trials and found that corticosteroid infusion is compelling in help with discomfort and improving grasp quality when contrasted with other ordinary therapies. The specific system of activity of nearby steroid infusion is dubious. Then again, PRP is a perfect autologous organic blood-determined item that discharges high groupings of platelet inferred development factors on infusion which upgrade ligament recuperating because of its consequences for angiogenesis and collagen union. Different development variables and cytokines in PRP incorporate Platelet-Derived Growth factors (PDGF-aa, PDGF-bb, PDGF-stomach muscle), Transforming Growth Factor beta (TGF-b1, TGF-b2), Fibroblast development factor (FGF), Insulin-Like Growth Factor-1 and 2 (IGF-1, IGF-2), Vascular Endothelial Growth Factor, Epidermal Growth Factor, Interleukin, Keratinocyte Growth Factor, Connective Tissue development factor. Platelets discharge over 95% of the pre-integrated development factors inside one hour of initiation. This underlying burst is trailed by consistent amalgamation and discharge of development factors for their residual life expectancy.

Arik HO et al. (Arik et al., 2014) randomised controlled examination looking at the viability of autologous blood infusion versus corticosteroid infusion for sidelong epicondylitis detailed VAS score for elbow torment, PRTEE score, and grasp quality improved fundamentally after treatment (p=0.0001), yet the example of progress varied. Contrasted and autologous blood infusion, corticosteroid infusion improved every one of the three scores at a quicker rate over the initial 15 days (p=0.0001), and afterwards began to decay marginally until day 90. After autologus blood infu-
tently and were in the long run better (p=0.0001). On the off chance that a 37% decline in PRTEE is characterised as complete recuperation (or least clinically significant difference), 11 38 (95%) of patients with autologous blood infusion. Coombes BK et al (Coombes et al., 2013) factorial, randomized, infusion blinded, placebo-controlled preliminary examining the viability of corticosteroid infusion, multimodal physiotherapy, or both in patients with one-sided horizontal epicondylalgia announced physiotherapy and no physiotherapy bunches didn’t vary on 1-year evaluations of complete recuperation or much improvement (91% versus 88%, individually; RR, 1.04 [99% CI, 0.90-1.19]; P = .56) or repeat (29% vs 38%; RR, 1.31 [99% CI, 0.73-2.35]; P = .25). Comparative examples were found at 26 weeks, with lower total recuperation or much improvement after corticosteroid infusion versus fake treatment infusion (55% versus 85%, individually; RR, 0.79 [99% CI, 0.62-0.99]; P < .001) and no contrast between the physiotherapy and no physiotherapy gatherings (71% versus 69%, separately; RR, 1.22 [99% CI, 0.97-1.53]; P = .84). About a month, there was a critical association between corticosteroid infusion and physiotherapy (P = .01), whereby patients accepting the fake treatment infusion in addition to physiotherapy had more noteworthy complete recuperation or much improvement versus no physiotherapy (39% versus 10%, separately; RR, 4.00 [99% CI, 1.07-15.00]; P = .004). Nonetheless, there was no contrast between patients accepting the corticosteroid infusion in addition to physiotherapy versus corticosteroid alone (68% versus 71%, individually; RR, 0.95 [99% CI, 0.65-1.38]; P = .57).

Bobin Mi et al (Mi et al., 2017) in a meta-investigation of randomized clinical preliminaries contrasting the viability of platelet rich plasma (PRP) versus steroid in decreasing torment and improving capacity of the elbow in the treatment of LE indicated that there was no huge distinction in relief from discomfort for the time being (2 to about a month: SMD = 1.02, P = .03; 6 to about two months: SMD = .73, P = .24) and the middle of the road term (12 weeks: SMD = −0.28, P = .35). Steroid displayed a superior adequacy of capacity for the time being (2 to about a month: SMD = .61, P < .001; 6 to about two months: SMD = .53, P < .001). Nonetheless, PRP was better than steroid for relief from discomfort in the long haul (half year: SMD = −1.6, P < .001; one year: SMD = −1.45, P < .001), and furthermore for work improving in the moderate term (12 weeks: SMD = −0.53, P < .001) and the long haul (half year: SMD = −0.56, P < .001; one year: SMD = −0.7, P < .001). No genuine antagonistic impacts of treatment were seen in the two gatherings.

Extracorporeal stun wave treatment was additionally more compelling than corticosteroid infusion in the long haul. (Ozturan et al., 2010) One investigation revealed no considerable distinction between autologous blood infusion, corticosteroid infusion, and placebo. Horizontal epicondylitis is a self-constraining sickness, and the help of side effects is identified with a period (Wolf et al., 2011). Platelet-rich plasma has more elevated levels of development factors for incitement of recovery, and yields comparable outcomes to autologous blood as far as agony decrease and utilitarian improvement at six months (Thanasas et al., 2011; Creaney et al., 2011). Be that as it may, the requirement for careful mediation was higher after platelet-rich plasma infusion than autologous blood infusion (20% versus 10%) (Creaney et al., 2011). What’s more, readiness and use of platelet-rich plasma require appropriate gear, which is costly and tedious.

CONCLUSIONS

Along these lines, we presumed that PRP as an unrivalled treatment choice in instances of tennis elbow. In any case, keeping in see the constrained time of follow up in the current examination we prescribe longer follow up studies to additionally unite our discoveries and set up the long haul viability of PRP in instances of sidelong epicondylitis.

ACKNOWLEDGEMENT

None to report

Funding source

None to report.

Conflict of Interest

We all the authors declare no conflict of interest.

REFERENCES

Allander, E. 1974. Prevalence, Incidence, And Remission Rates of Some Common Rheumatic Diseases Or Syndromes. Scandinavian Journal of Rheumatology, 3(3):145–153.

Altan, L., Kanat, E. 2008. Conservative treatment of lateral epicondylitis: comparison of two different orthotic devices. Clinical Rheumatology, 27(8):1015–1019.

Alty, T., Gunal, I., Ozturk, H. 2002. Local Injection Treatment for Lateral Epicondylitis. Clinical Orthopaedics and Related Research, 398:127–130.

Arik, H. O., Kose, O., Guler, F., Deniz, G., Egerci, O. F., Ucar, M. 2014. Injection of Autologous Blood
versus Corticosteroid for Lateral Epicondylitis: A Randomised Controlled Study. *Journal of Orthopaedic Surgery*, 22(3):333–337.

Bisset, L., Beller, E., Jull, G., Brooks, P., Darnell, R., Vicenzino, B. 2006. Mobilisation with movement and exercise, corticosteroid injection, or wait and see for tennis elbow: randomised trial. *BMJ*, 333(7575):939–939.

Bot, S. D. M. 2005. Course and prognosis of elbow complaints: a cohort study in general practice. *Annals of the Rheumatic Diseases*, 64(9):1331–1336.

Chiang, H. C., Ko, Y. C., Chen, S. S., Yu, H. S., Wu, T. N., Chang, P. Y. 1993. Prevalence of shoulder and upper-limb disorders among workers in the fish-processing industry. *Scandinavian Journal of Work, Environment & Health*, 19(2):126–131.

Coombes, B. K., Bisset, L., Brooks, P., Khan, A., Vicenzino, B. 2013. Effect of Corticosteroid Injection, Physiotherapy, or Both on Clinical Outcomes in Patients With Unilateral Lateral Epicondylalgia. *JAMA*, 309(5):461–461.

Creaney, L., Wallace, A., Curtis, M., Connell, D. 2011. Growth factor-based therapies provide additional benefit beyond physical therapy in resistant elbow tendinopathy: a prospective, single-blind, randomised trial of autologous blood injections versus platelet-rich plasma injections. *British Journal of Sports Medicine*, 45(12):966–971.

Hay, E. M., Paterson, S. M., Lewis, M., Hosie, G., Croft, P. 1999. Pragmatic randomised controlled trial of local corticosteroid injection and naproxen for treatment of lateral epicondylitis of elbow in primary care. *BMJ*, 319(7215):964–968.

Jafarian, F. S., Demneh, E. S., Tyson, S. F. 2009. The Immediate Effect of Orthotic Management on Grip Strength of Patients With Lateral Epicondylitis. *Journal of Orthopaedic & Sports Physical Therapy*, 39(6):484–489.

Khaliq, A., Khan, I., Inam, M., Saeed, M., Khan, H., Iqbal, M. J. 2015. Effectiveness of platelets rich plasma versus corticosteroids in lateral epicondylitis. *J Pak Med Assoc*, 65(11):100–104.

Kurppa, K., Viikari-Juntura, E., Kuosma, E., Huuskonen, M., Kivi, P. 1991. Incidence of tenosynovitis or peritendinitis and epicondylitis in a meat-processing factory. *Scandinavian Journal of Work, Environment & Health*, 17(1):32–37.

Mi, B., Liu, G., Zhou, W., Lv, H., Liu, Y., Wu, Q., Liu, J. 2017. Platelet rich plasma versus steroid on lateral epicondylitis: meta-analysis of randomized clinical trials. *The Physician and sportsmedicine*, 45(2):97–104.

Ono, Y., Nakamura, R., Shimaoka, M., Hiruta, S., Hattori, Y., Ichihara, G., Kamijima, M., Takeuchi, Y. 1998. Epicondylitis among cooks in nursery schools. *Occupational and Environmental Medicine*, 55(3):172–179.

Ozturan, K. E., Yucel, I., Cakici, H., Guven, M., Sungur, I. 2010. Autologous Blood and Corticosteroid Injection and Extracorporeal Shock Wave Therapy in the Treatment of Lateral Epicondylitis. *Orthopedics*, 33(2):84–91.

Ranney, D., Wells, R., Moore, A. 1995. Upper limb musculoskeletal disorders in highly repetitive industries: precise anatomical physical findings. *Ergonomics*, 38(7):1408–1423.

Shiri, R., Viikari-Juntura, E., Varonen, H., Heliovaara, M. 2006. Prevalence and Determinants of Lateral and Medial Epicondylitis: A Population Study. *American Journal of Epidemiology*, 164(11):1065–1074.

Smidt, N. 2005. A comparison of two primary care trials on tennis elbow: issues of external validity. *Annals of the Rheumatic Diseases*, 64(10):1406–1409.

Smidt, N., van der Windt, D. A., Assendelft, W. J., Devillle, W. L., de Bos, I. B. K., Bouter, L. M. 2002. Corticosteroid injections, physiotherapy, or a wait-and-see policy for lateral epicondylitis: a randomised controlled trial. *The Lancet*, 359(9307):657–662.

Thanasas, C., Papadimitriou, G., Charalambidis, C., Paraskevopoulos, I., Papanikolaou, A. 2011. Platelet-Rich Plasma Versus Autologous Whole Blood for the Treatment of Chronic Lateral Elbow Epicondylitis. *The American Journal of Sports Medicine*, 39(10):2130–2134.

Vicenzino, B. 2003. Lateral epicondylalgia: a musculoskeletal physiotherapy perspective. *Manual Therapy*, 8(2):66–79.

Walker-Bone, K., Palmer, K. T., Reading, I., Coggan, D., Cooper, C. 2004. Prevalence and impact of musculoskeletal disorders of the upper limb in the general population. *Arthritis Care & Research*, 51(4):642–651.

Wolf, J. M., Ozer, K., Scott, F., Gordon, M. J., Williams, A. E. 2011. Comparison of Autologous Blood, Corticosteroid, and Saline Injection in the Treatment of Lateral Epicondylitis: A Prospective, Randomized, Controlled Multicenter Study. *The Journal of Hand Surgery*, 36(8):1269–1272.

Yadav, R. 2015. Comparison of Local Injection of Platelet Rich Plasma and Corticosteroids in the Treatment of Lateral Epicondylitis of Humerus. *Journal Of Clinical And Diagnostic Research*, 9(7).