

Treatment of tennis elbow with platelet- rich- plasma.

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Abstract

platelet-rich-plasma is increasingly used in tennis elbow. This study show the clinical outcomes of a single PRP injection .our study was done between Dec. 2015 and Oct. 2016, platelet-rich-plasma was administrated to thirty patients. All subjects underwent prospective clinical evaluation, including visual analog scale (VAS) for pain for six month follow up .most of the patient (VAS) significantly improve from (p > 0.05) after injection with platelet-rich -plasma .so as the result show the PRP injections in tennis elbow showed better improvement in outcomes .

Key words: PRP, tennis elbow, lateral epicondylitis, local injection

Introduction

The platelet-rich plasma (PRP) is one of the most recent methods that used as local injection therapy for treatment of chronic tendinitis .it can be prepared from autologous blood to get high platelet concentration usually five fold than normal . which prepared by different methods .these PRP contains a lot of growth factors that had the ability to induce tissue regeneration [1,2,3,].

After injection of the PRP there are release of many growth factors within minutes to start healing process in affected area [4,5]. These factors had the ability to proliferate and increases number of the cells in tendons and produce good healing potential [6,7,8]. For that reason PRP used widely in state of tendon injuries like sport injuries and in case of chronic tendenosis.[9]

Tennis elbow (lateral epicondylitis) is one the chronic tendon condition that may not respond to conservative treatment [10]. The PRP local injection emerge as one of the promising choice for persistent tendenosis[11,12,13].

For that reason this study was done to evaluate the efficacy of local injection of PRP in tennis elbow that fail to heal with

other conservative options in six months follow up.

Methods

Between Dec. 2015 and Oct. 2016 in in Al-Diwanyia teaching hospital orthopedic department ,thirty patients with tennis elbow were selected after allocated them by inclusion and exclusion criteria .

These patient were older than 20 years old and had pain and tenderness over the lateral epicondyle of humors . in addition to pain on passive stretching of extensor tendons .

Ycellbioprpr system was used in this study as there are many methods to prepare the PRP . the blood that collected from anticubital veins about 20 cc , then it mixed with anticoagulant (CPDA-1) 1.5 cc .

Then put the collected blood in the PRP kit and used centerfuge to get the PRP .usually we used 4 minute and 3400 rpm to get PRP and separate it from poor platelet plasma .

The amount of PRP that get is about 1.5 -2 cc which used for injection .we used these amount under sterile condition inject the PRP to the area of maximum tenderness .

After injection used sterial dressing to cover the injection site and watch the patient for 20 minute then discharge them home . the patient advice to not take analgesia except

the paracetamol and to take rest for the next 24 hours.

VAS score was used to evaluate our treatment with PRP injection at one ,three and six months in all thirty patients and also before the injection.

Results

The patient are all male with mean age 35 years old ranging from 20 to 60 years old .the result of the study was evaluated depend on VAS system .we evaluate the patient before the injection and rated their result .after that the patient was evaluated at first and third and sixth month after injection .

The thirty patient was asked about their pain in VAS system.

Also we examine the patient about any local complication like cellulitis ,osteomyelitis ,stiffness .no one from these patient develop such complications.

After one months of PRP treatment the VAS was significantly reduced ($p < 0.001$) .most of the patient

After three months the VAS was fall and remain so till six months .

All patient with PRP injection their VAS significantly lower in comparison to that before the injection with PRP and remain so after the first ,third and sixth month. Table 1

Dissicusion

the PRP treatment consider one of the recent option as local treatment in chronic tendenosis when the other method of conservative treatment is failed .the main goal is to achieve healing[14,15] .

the success of the local injection with PRP in tennis elbow has been reported by many authors.

To achieve good result ,we must did good PRP preparation and proper injection method as these consider the key for successful treatment[16,17].

Recently there are a lot of method and kit in the market to prepare PRP and the completion between them how to get high platelets concentration and how easy to spate and collect this PRP[18,19,20].In addition local injection under ultrasound guide to achieve accurate injection site[21] .

In my country there are few study that show the use of PRP injection in treatment of tendenosis and to evaluate its result and compare it to the international studies results using the same scoring system for evaluation and same follow up period . all the patient are male because most of the female refused to do PRP injection in this study as they consider it as new treatment.the mean age is about 35 years old and the right side is the most one affected.

The main finding in this study is improvement in the pain score and remain good after improvement in all the follow up period .

Regarding the amount of injection , Although smaller volume (2-3 ml) of PRP was injected in present study or even 1.5 ml such as in other studies. the proportion of spread beyond tendon was little . so the amount of PRP is even 1.5 ml is adequate to achieve good result. on the other hand the greater volume of PRP could be an option. However, large volume can lead to further diffusion and require much more blood collection, which is undesirable[22].

In this study, we not used ultrasonographic injection technique and the accuracy of injection was not to be guaranteed. Therefore we increase the volume of injection up to 3ml so we can get maximum distribution of PRP in the area of maximal

tenderness ,in comprising with ultrasound injection which use 1.5 ml .

Conclusion

Though it is an invasive technique, it has many benefits in that. It is less time consuming and has an autologous nature with easy application. The PRP injection

should be given to each patients with lateral epicondylitis after getting no benefit from other modalities of conservative management . Further comparative studies with other type of injection or surgery are requisite to evaluate the long-term results .

Table 1 VAS of the patients before the PRP injection and after the injection

	Before PRP treatment Mean (SD)	Mean (SD) first month after treatment	Mean (SD) third month after treatment	Mean (SD) sixth Month after treatment
PRP therapy (n ¼ 30)	15.7 (0.762)	12.1 (1.03)	12.1 (0.453)	12.0 (0.453)
	p > 0.05	p < 0.05	p < 0.001	p < 0.001

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