



RESULTS OF CONSERVATIVE TREATMENT IN PATIENTS WITH CARPAL TUNNEL SYNDROME

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ABSTRACT

Under our supervision there were 60 patients with carpal canal stenosis who received conservative treatment in the emergency traumatology department of the Republican Scientific Center for Emergency Medical Care of Khorezm Branch Family doctors clinic, Tashkent. Of these, there are 26 men, 34 women. At the age of 30 – 40 years – 17 patients, 41-50 years – 19 patients, 51-60 years – 18 patients and 61 and above years – 6 patients. The patients were divided into 2 groups: The main group was 30 patients, treated according to the method we developed using platelet-rich plasma. The control group received treatment using traditional methods using glucocorticosteroids. The treatment results showed an improvement in performance when using PRP therapy in the main group up to 93.5 %, compared to the control group up to 73%.

Relevance: Carpal tunnel syndrome (CTS) is considered a common disease affecting people of working age. The development of CTS results from overstraining the muscles and tendons of the hand and fingers when performing professional duties or physical exercise. CTS has characteristic clinical signs that are classified according to severity, from mild to severe. This disease has certain methods of diagnosis and surgical treatment. With complex conservative treatment, you can get good results at an early stage of the disease, i.e. only in the first 6 months from the onset of the disease. Surgical intervention is performed when conservative treatment is ineffective and when patients present late, depending on the degree of the disease.

Based on clinical, neurophysiological and ultrasound indicators in patients with SBS, V.N. Kiselev 2020 divides the stages of the disease into 3 degrees: mild, moderate and severe. In case of mild to moderate severity, conservative treatment is carried out using a single perineural administration of GCS. The researcher developed a modified method of local administration of corticosteroids for SBS with repetition after a certain time. Based on an analysis of the dynamics of clinical, ultrasound indicators, as well as neurophysiological studies,



he noted that the use of this technique has a great advantage over the currently accepted method of treatment.

According to S.A. Zhivolupova 2021 the maximum positive effect of treatment can be obtained after the use of perineural administration of GCS. The author proved his data with clinical and instrumental data. The researcher wrote that the effectiveness of treatment depends on the stage of the disease : The early stage requires complex conservative treatment, the later stages require surgical treatment. . Conducted a comparison of clinical and neurophysiological results of conservative therapy (both traditional and modified) and surgical treatment of SCC.

Researchers (T. Armstrong, W. Devor , L. Borschel [et al.] 2004, E. Pratt, H. Vauth , G. McIlvan [et al.] 2020, Tascioglu , F. 2012, Y ü cel , H 2015 ..) their works have repeatedly shown that when using perineural administration of GCS, high clinical efficacy and a decrease in HF compression were obtained. We also received not only clinical improvement in the form of regression of pain and sensory disorders, but also positive results of neurophysiological and ultrasound parameters during instrumental examination of the median nerve.

V.N. 2018, Samartsev, I.N. 2017, Aroori , S. 2008 , . Karadas , OK Omac , F. Tok [et al 2012], / HS Makanji , SJ Becker, CS Mudgal [et al.] . – 2014.) wrote that there are no clear deadlines for the frequency of injections, and the most common approach in practice is to repeat the procedure when clinical symptoms return. However, this approach has a number of disadvantages. First of all, it should be noted that clinical symptoms in SCS are not always a reliable indicator of assessing the real functional state of the nerve

Authors (Bagatur , A.2013 , M. Chammas , J. Boretto , L. Burmann [et _ _ al .] 2014 F . Ginanneschi , G. _ Filippou , M. _ Bonifazi [et al .] 2014) indicated that in some patients with mild The degree of SCS is characterized by unexpectedly severe pain, while in patients with severe neuropathy there may be no pain. In such cases, the dynamics of the results of ENMG and ultrasound, as well as indicators of the morpho-functional state of the median nerve, are not taken into account.

Authors (Golubev, V.L. 2009, Bersnev, V.P. Kokin G. S. 2017 , D. Ly - Pen , J. L. Andreu , I. Millan [et al .]2012, J. R. _ Fowler , J. _ P. _ Gaughan , A. _ M. _ Ilyas 2011 E. _ Trachani , A. _ Rigopoulou , D. _ Veltsista [et al .] 2018) during treatment **For** carpal canal stenosis , drug therapy was used, as well as physiotherapeutic treatment, physical therapy, manual therapy, massage, mud therapy, and hydrotherapy.

Thus, improving conservative treatment is an urgent problem that requires further study and development of methods for local administration of GCS or PRP therapy in the treatment of SCC based not only on clinical, but also instrumental data .

The purpose of the study is to: Improve treatment outcomes for patients with carpal tunnel syndrome through the use of PRP therapy.

Materials and methods of research . We have observed 60 patients with carpal tunnel stenosis since 2015. until 2022, those who received conservative treatment in the Emergency Traumatology Department of the Russian Research Center for Medical Physics and Pediatric Physics and in the Family Clinic doctors Tashkent. Of these, there are 26 men, 34 women. At the age of 30 – 40 years – 17 patients, 41-50 years – 19 patients, 51-60 years – 18 patients and 61 and above years – 6 patients. The patients were divided into 2 groups: The main group was 30



patients, treated according to the method we developed using platelet-rich plasma. The control group received treatment using traditional methods using glucocorticosteroids. The complex of conservative treatment included: drug therapy (anti-pain, anti-inflammatory and symptomatic), also physiotherapy, therapeutic physical education, manual therapy, therapeutic massage, mud therapy. We compared the clinical and neurophysiological results of conservative therapy (both traditional and the method we developed using PRP therapy) for the treatment of SBS. For the treatment of carpal stenosis canal we performed PRP therapy for the purpose of conservative treatment in the carpal tunnel area.

PRP therapy reduces inflammation and swelling of tendons and nerves, ensuring regeneration of tendons and nerves, increasing the range of motion in the wrist joint, and obtaining a pronounced and lasting analgesic effect .

When treating carpal tunnel stenosis, we carried out injection of platelet-rich autogenous plasma into the carpal tunnel, the preparation of which for administration includes the collection of venous blood by adding 1 ml of sodium heparin , separation of red blood cells by centrifugation and injection into a large joint, and intra-articular injection with a hyaluronic acid preparation , characterized in that Venous blood is collected in a volume of no more than 10 ml, centrifugation at 3200 rpm is carried out for 5 minutes , the resulting solution after layer-by-layer anesthesia with 0.5% novocaine in an amount of 4-5 ml is injected into the carpal canal once, additionally, an intracarpal injection of enriched with autogenous plasma platelets is repeated on the fourth and eleventh days immediately after collection. And 18 days after a three-time intracarpal injection of platelet-rich plasma, a hyaluronic acid preparation is injected into the carpal canal once .

Platelets contained in blood plasma act phagocytically and relieve inflammation in the carpal tunnel. Under the influence of platelet factors, the formation of collagen, which is part of the framework for tendons, nerves and bone tissue, is enhanced, and a rapid (2-7 days) therapeutic effect is achieved .

Protein contained in blood plasma acts on the regeneration of tendons and nerves

The combined use of injection drugs, including platelet-rich plasma and one of the hyaluronic acid preparations for tendons, administered in a certain sequence, in our proposed method, allows us to obtain a positive result that is not provided by any of the known methods for treating this disease. The positive result obtained when using the proposed method consists in a more pronounced and long-lasting analgesic effect, which patients immediately felt after the course of treatment. It should be taken into account that at present there is not a single method of conservative treatment for the early stage of carpal canal stenosis at the initial stage of perineural administration of PRP therapy. Also, the method we propose is inexpensive, minimally invasive, simple, in which it is possible to create a growth factor for tendons and nerves from whole blood, reduce compression of the heart failure, regress clinical symptoms, as well as improve its conductivity, and this data has been proven by neurophysiological research.

Clinical example 1. Patient B.S., born in 1985. Diagnosis: Carpal stenosis channel on the right . She contacted the clinic on May 5, 2022. The patient was treated according to the proposed method.



, venous blood was collected from the patient in a volume of 10 ml into a test tube with 1 ml of sodium heparin . The test tube with the contents was subjected to centrifugation (in the “ DL A B ” apparatus) to separate red blood cells at a speed of 3200 rpm for 5 minutes. The resulting solution - platelet-rich autogenous plasma, after layer-by-layer anesthesia with 0.5% novocaine, in an amount of 5 ml was injected into the right carpal canal once.

05/09/2022, immediately after collecting blood and separating red blood cells by centrifugation according to the claimed method, a second injection was carried out inside the carpal tunnel platelet-rich autogenous plasma.

On May 16, 2022 , immediately after collecting blood and separating red blood cells by centrifugation according to the claimed method, a third injection of platelet-rich autogenous plasma was performed inside the carpal tunnel on the right .

05/24/2022 to the right carpal tunnel, a hyaluronic acid preparation for tendons of 2 ml was injected once .

After the treatment, on the 3rd day the patient showed a pronounced decrease in pain, a decrease in swelling and an increase in the range of motion in the right wrist joint, a decrease in compression of the median nerve (MN), regression of clinical symptoms, as well as an improvement in conductivity along it, and these data were proven on the basis of neurophysiological research.

When studying the results of treatment after the use of PRP therapy, they showed an improvement in clinical indicators in patients with carpal tunnel stenosis

for “Assessing the results of treatment for carpal tunnel stenosis.” According to the working scale we developed, which took into account 5 parameters: the presence of pain , range of motion in the joints, impaired sensitivity of the median nerve, dynamometry indicators and return to work. The working scale we developed for assessing the results of treatment of patients with carpal tunnel stenosis is based on the parameters that most strongly influence the outcome of treatment. The assessment was carried out using a point system:

1. 1. Pain syndrome:
 - a. No pain syndrome – 10 points;
 - b. Pain syndrome is minor - 6 points;
 - c. Pain syndrome is pronounced - 2 points.
2. Range of motion:
 - a. In full, 90° - 180° (range of motion 90°) in the metacarpophalangeal joints (MCP) - 10 points;
 - b. The volume of movement in the PFJ is 100° - 175° (amplitude of movements 75°) - 6 points;
 - c. The volume of movement in the PFJ is 120° - 145° (the range of movements is 25° and less) -2- points.
3. Sensory impairment of the median nerve
 - A. No violation 10 points
 - V. Slightly violated 6 points
 - With. Complete violation 2 points
4. Labor activity:
 - a. Return to work - 10 points;



b. Disability - 2 points.

5.Brush strength:

a. Same as a healthy hand - 10 points

b. 15 points lower compared to a healthy hand -6 points

c. 30 points lower compared to a healthy hand - 2 points

The results were assessed using the following scoring system.

From 43 to 50 points excellent

From 42 to 36 points good

From 35 to 22 satisfactory result

Scores from 21-14 and below are unsatisfactory results

The results were assessed according to the following criteria:

- excellent - achieving complete restoration of sensitivity of the median nerve, no pain in the carpal tunnel, full range of motion in the wrist joint. (43 – 50 points)

- good - significant restoration of sensitivity of the median nerve has been achieved, pain has decreased in the carpal tunnel, range of motion is slightly limited in the wrist joint. (42 – 36 points)

- satisfactory – slight restoration of sensitivity of the median nerve, pain has not decreased in the carpal tunnel, range of motion is significantly limited in the wrist joint. (35 – 22 points).

- unsatisfactory - there is no restoration of sensitivity of the median nerve, severe pain in the carpal tunnel, range of motion is sharply limited in the wrist joint. (21 – 14 and below points)

Treatment results after the use of PRP therapy, treatment results in the main group improved in 28 patients (93.5%), compared with the control group of 22 patients (73%) patients with carpal tunnel stenosis. (Table 1)

The results of conservative treatment of the main and control groups before and after treatment are shown in Table 1.

Table No. 1

Period	Indicators (points)	Comparison groups		R
		Main group n=30	Control group n=30	
Before operations	Great	0	0	
	Fine	0	0	
	Satisfactorily	33.5%)	12(40%)	p > 0.1
	Unsatisfactory	20(66.5%)	18(60%)	p > 0.1
After treatment 1 month	Great	2(6%)	0	p < 0.05
	Fine	15(51%)	5(16.5%)	p < 0.01
	Satisfactory	12(40%)	23(77%)	p < 0.001
	Unsatisfactory	1(3%)	2(6.5%)	p > 0.1
After treatment Through 3 months	Great	3(10%)	1(3%)	p < 0.001
	Good	19(64%)	7(23%)	p < 0.001
	Satisfactory	8(26%)	21(71%)	p < 0.001
	Unsatisfactory	0	1(3%)	p > 0.1



After treatment through 6 months	Great	4(13%)	2(6.5%)	p<0.01
	Fine	20(67%)	11(31.5%)	p < 0.001
	Satisfactory	6(20%)	16(59%)	p < 0.001
	Unsatisfactory	0	1(3%)	p > 0.1
After treatment through 12 months	Great	5(16.5%)	2(6.5%)	p < 0.001
	Fine	23(77%)	20(66.5%)	p < 0.01
	Satisfactory	2(6.5%)	8(27%)	p < 0.001
	Unsatisfactory	0	0	p > 0.1

The table shows that before treatment in both groups there were no excellent or good results, in the main group there was a satisfactory result in 10 patients (33.5%), in the control group in 12 (40%) patients, an unsatisfactory result in the main group was in 20 (66.5%) patients, in the control group in 18 (60%) patients.

1 month after treatment in the main group, excellent and good results were noted in 17 (57 %) patients, in the control group in 5 (16.5%) patients, satisfactory in the main group in 12 (40%) patients, in the control group in 23 (77%) patients, unsatisfactory in the main group in 1 (3%) patients, in the control group in 2 (6.5%) patients.

3 months after treatment in the main group, excellent and good results were noted in 22 (74 %) patients, in the control group in 8 (26%) patients, satisfactory in the main group in 12 (40%) patients, in the control group in 21 (71%)) patients, unsatisfactory in the main group absent, in the control group in 1(3%) patients.

6 months after treatment in the main group , excellent and good results were noted in 24 (80%) patients, in the control group in 13 (38%) patients, satisfactory in the main group in 6 (20%) 40%) patients in the control group in 16 (59%) patients, unsatisfactory in the main group, absent in the control group in 1(3%) patients.

12 months after treatment in in the main group, excellent and good results were noted in 28 (93.5%) patients; in the control group, in 22 (73%) patients; satisfactory in the main group in 2 (6.5%) patients; in the control group, in 8 (27%) patients, unsatisfactory in the main group and absent in the control group.

The method of using PRP therapy that we developed showed a decrease in the likelihood of relapse of HF tunnel neuropathy in the carpal tunnel and subsequent courses of conservative treatment. In patients who received traditional therapy with serial administration of corticosteroids, compared with long-term observation, not only clinical improvement was noted in the form of regression of pain and sensory disorders, but also positive results of neurophysiological and ultrasound parameters during instrumental examination of the median nerve. Before treatment in both groups, there were no excellent or good results, satisfactory in the main group was in 10 (33.5%) patients, in the control group in 12 (40%) patients, unsatisfactory in the main group in 20 (66.5%) patients, in control group in 18(60%) patients. After 12 months after treatment in the main group there were excellent and good results in 28 (93.5%) patients in the control group in 22 (73%) satisfactory in the main group 2 (6.5%) patients in the control group in 8 (27%) patients , unsatisfactory in the main group and absent in the control group. Improvement in treatment results after using PRP therapy in the main



group, excellent and good results in 93.5%, compared with 73% in the control group, shows the effectiveness of this treatment method.

Conclusions:

1. The advantage of PRP therapy for carpal tunnel stenosis is a marked reduction in pain, reduced swelling and increased range of motion in the carpal joint, and reduced compression of the median nerve.
2. Regression of clinical symptoms of the median nerve, as well as improvement of conductivity along it, and this data has been proven based on neurophysiological research.
3. Before treatment in both groups there were no excellent and good results, satisfactory in the main group was in 33.5%, in the control group in 40%, after treatment in the main group excellent and good results were noted in 93.5%, in the control group in 73%, improvement in treatment results, proves the effectiveness of the proposed treatment method.

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