

tullanma hündürlüyü azalır, tullanmaya sərf olunan vaxt artır .

Açar sözlər: voleybol, oppanma hündürlüyü, aşıq baldır oynaqı, korset, zaman.

THE EFFECTIVENESS OF EXTRACORPOREAL FOCUSED SHOCKWAVE THERAPY IN THE TREATMENT OF PLANTAR FASCIITIS

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Annotation: Plantar fasciitis is a common pathological condition affecting hind foot. The etiology of this disorder is not fully known, but is most probable multi-factorial in nature. Extracorporeal shock wave therapy (ESWT) is a non-invasive procedure that includes delivering shock waves to the traumatic region with the goal of decreasing pain and encouraging soft tissue healing. Extracorporeal shock wave therapy of pain syndrome on the background of plantar fasciitis allows to get a good result in 50% of cases with full restoration of the foot function, professional and daily activity of the patient.

Key words: Plantar fasciitis, treatment, conservative, extracorporeal shock wave therapy, effectiveness

Introduction. A typical cause for heel pain is plantar fasciitis (PF), which affects 10 percent of the general population (1). Although the suffix "-itis" implies an inflammatory disease, evidence of mounting shows that this foot disease is associated with degenerative modifications and should be properly categorized as "fasciopathy" (2,3). It affects both athletes and sedentary patients (4). A heel spur might be available, however has likewise been accounted for may be present but can be pain free in up to 27% of patients without side effects (5). Plantar fasciitis is a common pathological condition affecting hind foot and was first described by Wood in 1812. Plantar fasciitis is also referred to as plantar heel pain syndrome, heel spur syndrome, painful heel syndrome, runner's heel, subcalcaneal pain, calcaneodynia, and calcaneal periostitis (6). Plantar fasciitis affects all age groups, genders and ethnicities, with a greater incidence observed in women aged 40-60

years (7).

The etiology of this disorder is not fully known, but is most probable multi-factorial in nature. Weight gain, occupation-related movement, anatomical varieties, bad biomechanics, shortening of calf muscles, over-exertion, lengthy periods of jobs in non-sedentary occupations and bad

footwear contribute elements (8). An exhaustive meta-analysis verified the accumulated incidence of PF in individuals with a body mass index (BMI) > 27 (odds ratio 3.7, 95 percent confidence interval [2.93 ; 5.62]) (9). Some patient features, such as plantar fascia thickness, BMI, age, psychological status, DM, the presence of diffuse hyperemia on bone scintigrams and the existence of inflammatory illnesses were suggested to affect the result of the patient. Among these characteristics, plantar fascia thickness is of particular interest, as it has been shown to increase significantly in plantar fasciitis, to respond to treatment, and can be analyzed quantitatively (10,11,12).

PF disorders must be identified on conventional radiography, ultrasound and magnetic resonance imaging (MRI) (13).

There are many treatments for PF, ranging from conservative therapy to physiotherapy and surgery (14). Conventional treatment options include massage, stretching, weight loss, night splints, motion control shoes, physical therapy, cold therapy, local ultrasound, orthotics, non-steroidal anti-inflammatory drugs (NSAIDs), local corticosteroids, and surgery in refractory cases. Surgery is unsuccessful in 2-35% of patients (15).

Extracorporeal shock wave therapy (ESWT) is a non-invasive procedure that includes delivering shock waves to the traumatic region with the goal of decreasing pain and encouraging soft tissue healing. The shock waves for orthopedic signs are the same as those used to break up kidney stones, but they have 10 times less energy. Low energy defocused ESWT or soft focused acoustical wave pattern is used for wound healing (16).

According to Sun K and Zhou H, ESWT had less complications and indicated a clear distinction in efficacy in chronic plantar fasciitis between ESWT and other therapy (17). Roca B. Et al. pointed out that extracorporeal shock wave therapy was superior to botulinum toxin type A in pain control in PF patients (18). Li S et al. showed that pain relief and achievement rates were linked to energy intensity concentrations, with the high-intensity

ESWT having the greatest probability of being the best therapy within 3 months, followed by CSI (corticosteroid injections) and low-intensity ESWT(19). Ogden reported using high-energy ESWT, resulting in 56 percent more of the treated patients having a good outcome after 12 weeks compared to those handled with placebo(20). ESWT, according to Magdy, is a non-invasive, secure and efficient therapy for recalcitrant plantar fasciitis(21). Jiale et al. proposed that FSWT (Focus Shock wave therapy) is more probable to provide relief from chronic plantar fasciitis than no treatment at all(22).

Extracorporeal shockwave treatment led in a 73.2% decrease in composite heel pain, which was 32.7% lower than that obtained with placebo (Golwitzer et.al,2007)(23).

However, not all appropriate studies have revealed beneficial outcomes on the impacts of ESWT on plantar fasciitis.

Materials and methods

An ethics approval was requested for this study “The effectiveness of extracorporeal focused shockwave therapy in the treatment of

Follow up of both groups were carried out at 5 weeks and the outcome was measured with Visual Analogue Pain Scale (VAS) and AOFAS scale. Statistical analysis was done using SPSS software, version 13. Independent t-test were applied to look for significant variations in outcome.

The inclusion criteria were tenderness on palpation of the heel, presence of pain in the plantar region for at least three months, presence of a calcaneal spur in lateral radiographs of the foot, and unilateral PF.

Active group received Low Energy Shock Wave Thereby that was applied in five sessions as weekly interval using 2000 impulses (pressure 2.5-3.5 bar, frequency 10-15 Hz) with an average energy flux density of 0.10 to 0.28 mJ/mm2. No anesthesia was used.

Results and analyses

The mean pre-treatment VAS for the entire active group was 7.03 ± 0.8. Five weeks after treatment the VAS decreased to 3.3 ± 1.5. The mean pre-treatment AOFAS for the entire group was 32.7 ± 1.2. Five weeks after treatment it has increased to 65.1 ± 2.9. This

Results	№ of patients	VAS		AOFAS	
		Before	After	Before	After
Good	15	7.1 ± 0.8	1.2 ± 0.8	32.4 ± 1.6	93.4 ± 2.5
Satisfactory	9	6.4 ± 1.0	3.4 ± 0.5	32.8 ± 0.7	63.2 ± 7.9
Unsatisfactory	6	7.3 ± 0.5	5.7 ± 0.5	33.0 ± 1.5	25.8 ± 20.1

Tab.1

plantar fasciitis” to the Ethical Commission of Azerbaijan State Academy of Physical Education and Sport and approved on 15 May 2019.

This scientific study is prospective, in which were selected patients whose VAS and AOFAS pain scores were almost the same. In this case, 60 patients were selected and then randomly were divided into two groups (active and control). The clinical observations included 30 patients who were on outpatient treatment for the 2017–2019 with a diagnosis of plantar fasciitis and were randomly recruited: 22 women (73.3%) and 8 men (26.7%). In Control group were 30 patients with PF, whom directed treatments to relieve plantar fasciitis pain consist of rest, activity modification, ice massage, nonsteroidal anti-inflammatory drugs and exercise.

No statistically significant difference was also observed between the two groups in age, sex and pain (P> 0.05). All patients were notified of the appropriate form of treatment and agreement was received in writing form to conduct a scientific study.

difference was statistically significant (P< 0.0001).

For Control Group before treatment VAS was 7.1 ± 0.7, AOFAS was 32.5 ± 1.5 . Five weeks after treatment the VAS changed to 7.09 ± 1.2 and AOFAS to 33.0 ± 2.0. This difference was not statistically significant (P > 0.05)

Results of our work we divided into 3 groups by SPSS Software 13 according to reduction of symptoms of disease before and after the treatment to the: Good, Satisfactory and Unsatisfactory groups (see tab.1).

tab.1

A good effect with the reduction or significant reduction in pain, the restoration of professional performance and the absence of restrictions on daily activity was obtained in 15 (50%) patients.

A satisfactory result - a reduction in previous pain, a moderate limitation of foot support with a slight decrease in professional performance and a restriction of daily activity was observed in 9 (30%) patients.

An unsatisfactory result - the preservation of the former pain, the absence of an increase in the support ability of the foot, the loss of professional performance, daily activity was noted in 6 (20%) people.

There were statistically significant improvements in post-intervention

Conclusion

1. The clinical positive effect of ESWT in the treatment of plantar fasciitis is delayed in time.
2. Extracorporeal shock wave therapy of pain syndrome on the background of plantar fasciitis allows to get a good result in 50% of cases with full restoration of the foot function, professional and daily activity of the patient.
3. The directed influence of shockwaves to the entheses of the plantar fascia a safe and effective nonsurgical method for treating chronic, recalcitrant heel pain syndrome.
4. Observations showed that the best effect appeared in those people who received therapy at least 5 times, with the calculation of 1 time per week. VAS, and AOFAS values in all treatment groups ($P < 0.0001$)

There were no reduction in the symptoms in control group and there did not noted any improving in daily activity because of the pain. ($P > 0,05$)

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Эффективность фокусной экстракорпоральной ударно-волновой терапии в лечении плантарного фасциита
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Аннотация: Подошвенный фасциит является распространенным патологическим состоянием, поражающим стопу. Этиология этого расстройства не полностью известна, но наиболее вероятно многофакторная причина. Экстракорпоральная ударно-волновая терапия это неинвазивная процедура, которая включает в себя доставку ударных волн в травматическую область с целью уменьшения боли и стимулирования заживления мягких тканей. Экстракорпоральная ударно-волновая терапия болевого синдрома на фоне подошвенного фасциита позволяет получить хороший результат в 50% случаев при полном восстановлении функции стопы, профессиональной и повседневной

активности пациента.

Ключевые слова: подошвенный фасциит, лечение, консервативная, экстракорпоральная ударно-волновая терапия, эффективность

Ekstrakorporal zərbə-dalğa terapiyasının plantar fassiit xəstəliyində effektivliyi
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Xülasə: Plantar fasiit, dabana təsir edən ümumi bir patoloji haldır. Bu pozğunluğun etiologiyası tam məlum deyil, yəni çoxətəbli ola bilər. Ekstrakorporal zərbə-dalğa terapiyası, ağrıları azaltmaq və yumşaq toxuma şəfasını təşviq etmək məqsədi ilə zərbə dalğalarını travmatik bölgəyə çatdırmağı ehtiva edən qeyri-invaziv bir prosedurdur. Plantar fasiit fonunda ağrı sindromunun ekstrakorporal şok dalğa terapiyası, ayaq funksiyasının, xəstənin peşəkar və gündəlik fəaliyyətinin tam bərpası hallarının 50% -də yaxşı nəticə əldə etməyə imkan verir.

Açar sözlər: Plantar fassiit, müalicə, konservativ, ekstrakorporal zərbə-dalğa terapiyası, effektivlik