

Clinical Research on Foot & Ankle

Research Article

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Keywords

Achilles tendinopathy; Collagen type-I; Mucopolysaccharides; Plantar fasciitis; Tendinopathy; Vitamin C

Introduction

Tendons are specialized tissues that connect muscles to bones and are

poor understanding regarding its pathogenesis [1]. Hence, there remains a constant interest in alternate therapies which can support and enhance physiological healing leading to development of physiologically normal

scale over the treatment period within the study groups was assessed using repeated measure ANOVA. P<0.05 was considered as statistically significant. The last observation carried forward method was used to impute the missing data of discontinued subjects.

Ethics

Approvals from the registered Institutional Ethics Committees of respective sites were obtained.

Results

A total of 100 patients were enrolled in the study out of which 97 subjects completed the study (Figure 1). All the demographic parameters and baseline characteristics of the disease condition such as VAS scores for pain on activity and rest, VISA-A score and AOFAS score at the baseline were comparable between the study groups (P>0.05) (Table 1).

The mean (SD) VAS score for pain on activity gradually decreased from 64.7 (4.8) at the baseline to 19.0 (8.6) at the end of the study in the active group and from 62.6 (5.8) at the baseline to 30.5 (8.3) at the end of the study in the placebo group. The change from baseline in VAS score for pain on activity was significantly higher in the active group as compared to the placebo group at all the follow up visits during the treatment period (Figure 2). Likewise, the mean VAS score for pain at rest gradually decreased from 35.7 (3.3) at the baseline to 11.0 (6.3) at the end of the study in the active group and from 35.3 (2.8) at the baseline to 19.2 (4.8) at the end of the study in the placebo group. The change from baseline in VAS score for pain at rest was also significantly higher in the active group as compared to the placebo group at all the follow up visits during the treatment period (Figure 3).

Parameter		Active N=50	Placebo N=50	P value
Age (years)		49.2 ± 10.4	47.5 ± 12.8	0.46
Gender*	Male	26 (52.0%)	21 (42.0%)	0.42
	Female	24 (48.0%)	29 (58.0%)	
Height (cm)		160.9 ± 7.0	159.7 ± 6.9	0.39
Weight (kg)		62.6 ± 7.1	61.6 ± 9.6	0.56
	Activity	64.7 ± 4.8	62.6 ± 5.8	0.06
VAS score*	Rest	35.7 ± 3.3	35.3 ± 2.8	0.49
		N=25	N=25	
VISA-A score#		40.3 ± 4.9	40.8 ± 4.3	0.71
AOFAS score\$		60.6 ± 14.8	56.2 ± 12.7	0.27

*Data presented as n (%)
 #Evaluated in patients with Achilles tendinopathy
 \$Evaluated in patients with plantar fasciitis

Table 1: Demographic characteristics of enrolled subjects. VAS-Visual analogue scale; VISA-A-Victorian Institute of Sport Assessment-Achilles questionnaire; AOFAS-American Orthopedic Foot and Ankle Society-Ankle-Hindfoot scale

Figure 2: Change from baseline in VAS score during activity at various timepoints

Figure 1: 6 W X G \ À R Z F K D U W

VISA-A score was significantly higher in the active group as compared to the placebo group starting from day 30 through the end of the study (Figure 4).

Figure 4: Change from baseline in VISA-A score in patients with Achilles tendinopathy - group comparison at day 15, day 30 and at both day 60 & 90 timepoints respectively.

The mean AOFAS score in patients with plantar fasciitis gradually improved from 60.6 (14.8) at the baseline to 90.7 (8.6) at the end of the study in the active group and from 56.2 (12.7) at the baseline to 72.4 (6.7) at the end of the study in the placebo group. The change from baseline in AOFAS score was significantly higher in the active group as compared to the placebo group at day 60 and at the end of the study (Figure 5).

Figure 5: Change from baseline in AOFAS score in patients with plantar fasciitis at various timepoints during the study. P=0.13, P=0.23, P=0.0006 and P=0.0015 for inter-group comparison at day 15, day 30, day 60 and day 90 timepoints respectively.

collagen type-I and vitamin C have also been reported in patients with various forms of tendinopathies as well as in animal models in in-vitro study [6,15-17]. In a single arm exploratory study conducted by Arquer et al. in patients with Achilles tendinopathy, patellar tendinopathy and tennis elbow, daily supplementation with mucopolysaccharides, collagen type-I and vitamin C resulted in a significant reduction in pain on activity and at rest both at day 30 and day 90 as compared to the baseline. A symptomatic and functional improvement was also reported on evaluation of disease specific questionnaires (VISA-A, VISA-P and PRTEE). Further, 10%-20% reduction in the thickness of affected tendons as compared to the baseline was also reported with supplement therapy when evaluated using ultrasound [6]. In another placebo-controlled study conducted by Binh et al. in patients with tendinopathy of Achilles, s(u)12 (p)11 (p1)0.6 (o)12 315 (d)10 ()TJ 0.091 T8.46.6-ts (d [6]. l)16 (n a--8 (e)q)10 (u)1ng u
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