THE USE OF SHORTWAVE DIATHERMY THERAPY* AFTER FAILED CONSERVATIVE TREATMENT OF CHRONIC PLANTAR FASCIITIS

Aliza M. Lee DPM[1], MS, DABPM; Meghan Ann Rudolf RN, CNL[2]; Madeleine M. Robben, BS[2]

1. Salem Veterans Affairs Medical center, Salem, VA
2. Roanoke Community College, Roanoke, VA

INTRODUCTION:

- Plantar fasciitis (PF) has been reported to occur in approximately 10% of the general population
- PF can lead to changes in weight bearing patterns resulting in secondary injury to the hip and knee joints
- 10% of individuals report *no improvement* in PF symptoms after using conservative treatments (e.g. shoe inserts, NSAIDs, ice, corticosteroids, stretching)
- Shortwave diathermy (SWD) is a noninvasive treatment that has proven to be effective and safe in improving pain and quality of life in many conditions

STUDY OBJECTIVE:

- The purpose of this pilot study is to examine the efficacy of SWD after failed conservative pain relief in 19 individuals with pain related to chronic PF

METHODS:

- Participants were recruited from the Salem VAMC
- Treatment comprised of 3 months of daily SWD treatment. Follow-up visits continued after the end of the treatment on a monthly basis for 3 months
- Primary endpoint was defined as a decrease in pain level after 3 months of treatment, as measured by the Visual Analogue Rating Scale (VAS)
- Secondary measures of recovery comprised of the American Orthopedic Foot and Ankle Questionnaire (FAQ) and the American Orthopedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Scale (AHS)
- Wilcoxon signed-rank tests were performed to compare baseline and 3-month measures

Table 1: Baseline Characteristics (n=19)

Demographics	
Age (mean, SD)	55.2, 10.3
Sex (n, % female)	5, 26.3%
Race (n, % non-Caucasian)	6, 31.6%
BMI (average, SD)	34.1, 7.3
Medical/Psychiatric History	
Number of problems indicated (mean, range)	25 (6-52)
Hypertension	13, 68.4%
Hyperlipidemia	7, 36.8%
Obesity	7, 36.8%
Type 2 Diabetes	5, 26.3%
Depression	4, 21.1%
General Anxiety Disorder	4, 21.1%
PF characteristics	
Months since onset (mean, range, SD)	161, 13-517, 162.9
Previous NSAID use (n, %)	19, 100%
Previous ice use (n, %)	19, 100%
Previous PRP use (n, %)	2, 10.5%
Previous Steroid use (n, %)	19, 100%
Previous taping (n, %)	5, 26.3%

Table 2: VAS pain scale scores at baseline compared to follow-up (n=17)

	Left – Baseline	Left – 3 months	Right – Baseline	Right – 3 months
Mean	6.0	2.0	6.7	2.4
Range	0.8-10	0-8.3	3.2-8.3	0-8.2
SD	2.4	2.3	1.7	2.1
Z	-	-2.490	-	-3.351
p-value	-	0.013*	-	<0.001*

Table 3: FAQ and AHS scores at baseline compared to follow-up (n=17)

	Baseline (mean, SD)	3-month follow-up (mean, SD)	Z	p-value
FAQ	70.5, 13.8	51.8, 13.7	-3.285	0.001*
AHS	55.6, 19.8	59.3, 18.9	-3.758	<0.001*

*Promedtek, Inc. Scottsdale, Arizona

RESULTS:

- All participants had a compliance rate of 70% or higher during the treatment period
- At baseline, all participants had chronic PF, were on average 55.2 years old, predominantly male and Caucasian, and had an average BMI of 34.1
- On both feet, SWD treatment elicited a statistically significant decrease in pain in individuals with PF (Right: Z= -3.351, p=<0.001: Left: Z=-2.490, p=0.013) after 3 months
- SWD treatment also resulted in significant improvements on the FAQ (Z=-3.285, p=0.00) and AHS (Z=-3.285, p<0.001)

CONCLUSION:

- SWD is an effective method for chronic pain relief for refractory cases of PF
- These results suggest that SWD should be considered an alternate to surgical intervention and the first line of therapy for individuals who have chronic PF
- Study limitations include small sample size, measures of dorsiflexion, and changes in pain/analgesic medication use during study treatment
- Larger-sized randomized controlled trials should be conducted in a more heterogenous population

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