Complementary Therapies in Medicine (2006) 14, 3—9

ELSEVIER

Complementary Therapies in Medicine

www.elsevierhealth.com/journals/ctim

The effect of topical wheatgrass cream on chronic plantar fasciitis: A randomized, double-blind, placebo-controlled trial☆

Mark A. Young, Jill L. Cook*, Kate E. Webster

Musculoskeletal Research Centre, School of Physiotherapy, La Trobe University, Bundoora, Vic. 3086, Australia

Available online 9 September 2005

Summary
Objectives: To investigate the efficacy of a topical wheatgrass cream for improving pain and function in patients with chronic plantar fasciitis.
Design: Randomized, double-blind, placebo-controlled trial.
Setting: Eighty participants with chronic plantar fasciitis were randomly assigned to a treatment group (wheatgrass cream) or a control group (placebo cream). All participants applied a cream twice daily for 6 weeks. Follow up was conducted at 6 and 12 weeks.
Main outcome measures: Visual Analogue Scale (VAS) for daily first-step pain and the Foot Health Status Questionnaire (FHSQ) for overall foot function. Secondary measures of foot posture, calf muscle strength and range of ankle dorsiflexion were also assessed.
Results: No significant differences were found between groups with respect to main outcomes of first-step pain or foot function at any time. Both groups improved significantly from baseline to 6 weeks, and these improvements were maintained at 12 weeks.
Conclusions: The topical application of wheatgrass cream is no more effective than a placebo cream for the treatment of chronic plantar fasciitis.

Introduction

Plantar fasciitis, or plantar heel pain, is one of the more common soft-tissue disorders of the foot, affecting 10% of the population at some stage.[1] It is a disabling condition for sufferers, and can cause intractable pain. Patients commonly present with pain and tenderness under the heel

☆ *Funding*: This study was sponsored by Douglas Pharmaceuticals Pty Ltd in partnership with a La Trobe University Collaborative Grant. Sponsors provided research assistant salary support and materials. The sponsors had no involvement in the collection, analysis or interpretation of data; in the writing of the report; or the decision to submit the paper for publication.

* Corresponding author. Tel.: +61 3 9479 5789; fax: +61 3 9479 5768.
E-mail address: J.Cook@latrobe.edu.au (J.L. Cook).

0965-2299/$ — see front matter © 2005 Elsevier Ltd. All rights reserved.
doi:10.1016/j.ctim.2005.07.003

on weight bearing, with associated limitation of activity. Typically, this pain is worst first thing in the morning.

Debate surrounds the exact aetiology of this condition. Many studies define plantar fasciitis as an overuse condition characterised by localized inflammation of the plantar fascia,[2,3] yet recent histological findings suggest the condition is associated with degenerative changes in the fascia, with no presence of inflammation.[4] This finding questions the rationale for treatments solely aimed at reducing inflammatory effects, such as topical anti-inflammatory creams and steroid injections, which carry with them associated risks such as gastrointestinal irritation, fat pad atrophy or plantar fascia rupture.[5]

A number of treatments have been proposed for this condition, including steroid injections, orthoses, heel pads, taping, stretching, extracorporeal shock wave therapy, anti-inflammatory medication and surgery. A recent Cochrane Systematic Review of interventions for treating plantar heel pain found the effectiveness of many interventions have rarely been demonstrated in randomized controlled trials, and conflicting evidence exists for those therapies that have undergone such trials.[6] Furthermore, some of these treatments, such as orthoses, steroid injections and extracorporeal shock wave therapy, can be painful or expensive.

There is a need to explore alternative treatments for plantar fasciitis that are safe, inexpensive and effective. The use of a topical wheatgrass cream has produced clinical observations of symptomatic improvement in patients with chronic plantar fasciitis, and a subsequent pilot study without a control group produced similarly promising results.[7] There are several proposed mechanisms through which wheatgrass may act, including the actions of chlorophyll or 'grass juice factor'.[8] The aim of this prospective randomized study was to investigate the efficacy of a topical wheatgrass cream compared to a placebo cream for improving pain and function in patients with chronic plantar fasciitis.

Materials and methods

Participants

One hundred thirty-four people responded to advertisements placed in local and state papers requesting volunteers over 18 years of age who had experienced plantar heel pain. Participants were informed the study was a randomized double-blind placebo-controlled trial over 12 weeks investigating an organic cream for the treatment of plantar heel pain. The La Trobe University Human Ethics Committee approved the project.

Participants with a history of plantar heel tenderness and/or pain upon arising in the morning or on recommencing activity after periods of rest (first-step pain) were included in the study. Symptoms must have been present for more than 6 months, as plantar fasciitis resolves with minimal intervention in a majority of sufferers within 6 months.[1] If symptoms were present in both heels, only the most symptomatic foot was entered into the study. Exclusion criteria included any history of trauma to the heel within the previous 12 weeks, pregnancy, seronegative arthropathies or any skin lesion over the plantar aspect of the heel. Participants who received a steroid injection or orthotic device within the previous 8 weeks were excluded, although continuation of conservative treatments such as stretching exercises or heel pads that had been commenced prior to this period were allowed.

Eighty participants were included in the study. Participants ranged in age from 20 to 82, with an average of 52 years. Forty-seven (59%) participants were women. The mean (S.D.) Body Mass Index was 29.8 (5.4) kg/m^2. The median duration of symptoms was 12 months and participants were on their feet for an average of 6 h per day. Four participants had diabetes (type 2), and six were receiving medication for hyperthyroidism. No other significant comorbidities were reported.

Procedures

Participants attended a 30-min initial history and clinical examination session. At this stage, they provided written informed consent and completed all outcome measures. Clinical characteristics such as foot posture, height and weight were measured.

After all baseline data had been collected, participants randomly selected their cream from a single box, which contained 45 wheatgrass (treatment) and 45 placebo (control) creams. Both creams consisted of a water-based solution, however, the wheatgrass cream contained 10% wheatgrass extract (Wheatgrass Active©, Level 2/55 Swanston St, Melbourne, Vic. 3000). Both creams were similar in colour and texture, with 1% tea tree oil used in both samples to mask the odour of the wheatgrass extract.

Both wheatgrass and placebo creams were placed in identical 100 ml clear glass containers, with each jar randomly assigned a number by an independent researcher. The jars were then placed randomly in a box and each participant drew a jar randomly from the box. These procedures ensured