



The effect of ginger therapy on symptoms of osteoarthritis: an open pilot study

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INTRODUCTION

Ginger has been used to manage chronic inflammatory conditions such as osteoarthritis (OA). The mechanisms of action of *Zingiber officinale*'s (ginger) active principles, gingerols and shogaols, have been identified in vitro and in vivo [1] and been demonstrated to diminish production of enzymes COX-1, COX-2 and 5-lipoxygenase that produce the proinflammatory prostaglandins and leukotrienes.

A systematic review of clinical trials using ginger to treat pain supports the anti-inflammatory role of ginger constituents, which are found to reduce the subjective experience of OA pain [2]. There are data that provides proof of concept to support topical use of ginger. Ginger inhibits COX-2, when applied to human epithelial tissue [3-4], and reported gingerol enriched extract can permeate human epidermis tissue [5]. Research suggests there is likely an anti-inflammatory effect, with the topical delivery of ginger such as ginger compresses. Ginger compresses applied to the mid-back are used in specialised clinics in Europe and are found to warm, relax and relieve the pain of osteoarthritis [6].

As a ginger compress would not be as viable for self treatment, or to ensure reproducible quality in the community, a ginger patch with the same active ginger ingredients was developed. This pilot study shows the potential beneficial effects of the ginger compress and a standardised ginger patch for people with osteoarthritis.

METHODS AND MATERIALS

Twenty adult volunteers recruited from primary care clinics and advertisements participated in the study. All participants had radiologically confirmed OA, with pain reported as 5/10 on a 10 point likert scale. Exclusion criteria included; joint replacement of the affected joint, rheumatoid arthritis, fibromyalgia, cancer and other serious health conditions, and those having corticosteroids and / or anti-coagulants in the past 12 weeks.

Participants completed a 5-item modified Health Assessment Questionnaire (MHAQ) and a 4 question osteoarthritis assessment scale [7]. The MHAQ has a 100mm visual analogue scale (VAS) for pain, fatigue and global effect, the HAQ-II for functional status [8] and a health satisfaction question on a categorical scale.

Patients visited the medical clinic daily for seven days to receive ginger therapy, while lying supine in a comfortable, quiet space for 45 minutes. Participants were alternatively allocated to seven days treatment with either the ginger compress (GC) or ginger patch (GP) applied to the lower back and nurses monitored temperature, pulse, respiration, blood pressure and weight before and after each treatment. Participants recorded pain scores on a 100mm VAS daily for 21 days and noted changes in medication. Participants had the option to continue using ginger patches at home for a further 24 weeks.



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RESULTS

The 20 adult volunteers with OA, aged 35 – 90 years (mean age 64 years, 80% female) had a mean pain score at baseline of 2.1, with 3 being the most extreme pain. Most participants had OA of the hips and/or knees (17/20, 85%) and suffered symptoms 1 – 25 years (mean 8.1 years).

Participant daily pain scores for 21 days show a downward trend (Fig 1). All participants registered a reduction in pain following ginger therapy using the GC and GP irrespective of concomitant medication, activity level or severity of symptoms.

A comparison between MHAQ scores for the GC and GP groups show a strong co-relation (Fig 2). The maximum score is 3.0, the GP group commenced with a higher overall mean score 1.85 and completed with an overall lower mean score 0.95, while the GC group commenced with a mean score of 1.75 and completed with a mean score of 1.1.

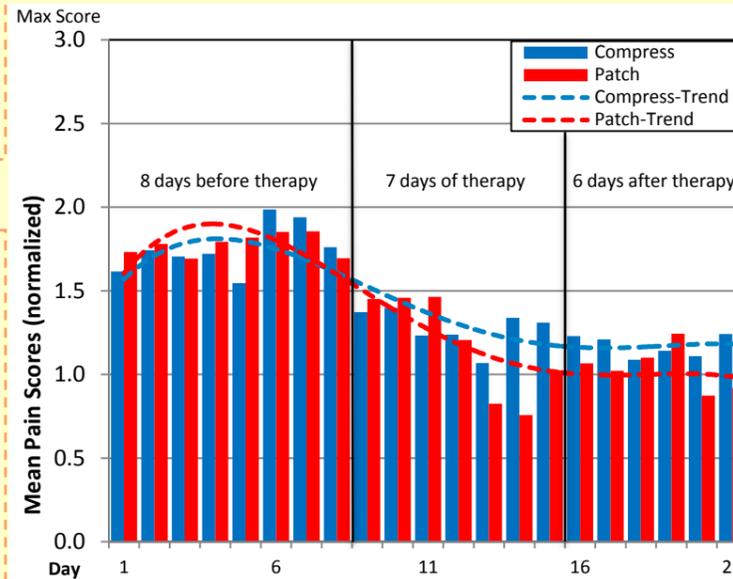


Figure 1. Daily pain scores compress / patch

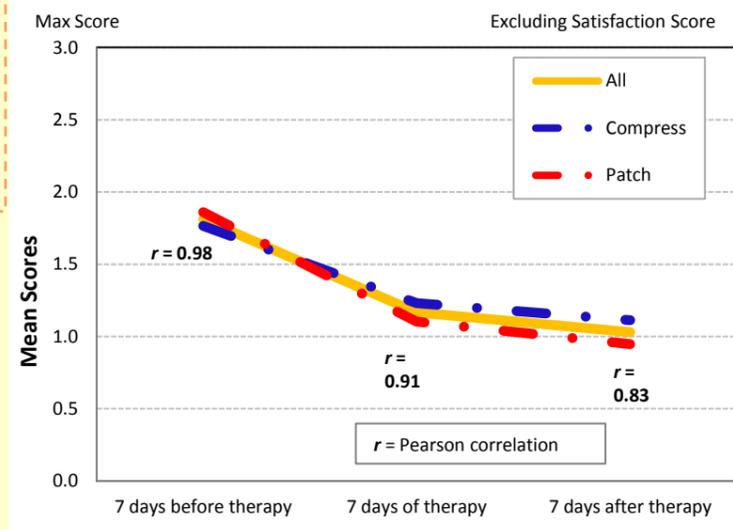


Figure 2. MHAQ scores compress / patch

RESULTS

The MHAQ mean total scores for all participants after therapy for pain, fatigue and global effect show percentage responses of 48%, 49% and 40%, respectively and for functional status 31% (Fig 3). All scores progressively declined over the following 24 weeks; 73% pain, 76% fatigue, 72% global effect and 63% functional status.

Health satisfaction showed a positive shift from 7 days before therapy, when 80% were dissatisfied to 7 days after therapy 70% were satisfied then after 24 weeks self treatment 83% were satisfied (Fig 4).

Ginger therapy was well tolerated, no adverse effects were reported and participants were 100% adherent with the 7 days of treatment.

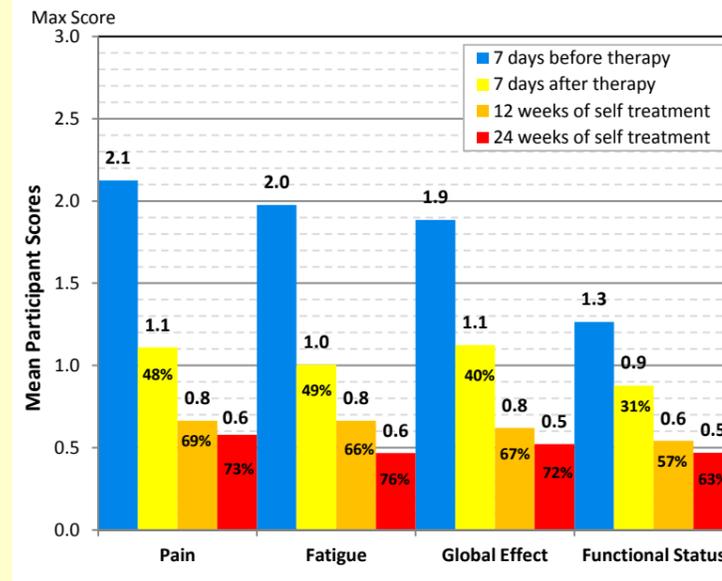


Figure 3 – MHAQ scores and percentage improvement in four domains

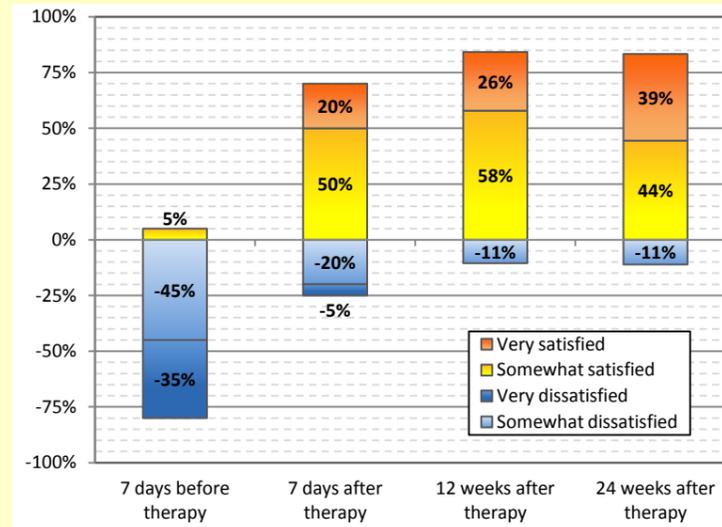


Figure 4 – MHAQ health satisfaction

DISCUSSION

Participant symptoms of chronic pain, fatigue, global effect, functionality and dissatisfaction in health significantly reduced after therapy, with both the ginger compress and ginger patch. These data are similar to the effects observed using other warmth and relaxation therapies for OA [12-14].

The participants varied widely in age, physical characteristics, comorbidities, duration and site of OA. Future research on larger numbers of a more homogenous cohort is required and in particular, topical ginger therapy must be assessed with a randomized, placebo controlled trial.

Many people with OA seek out and use complementary and alternative medicines, especially topical applications [9-11]. Topical applications of ginger are not found to have the negative effects of high doses of internal ginger extract or the peripheral anaesthesia often caused by topical capsaicin.

CONCLUSIONS

OA accounts for the majority of joint replacements and much of the musculoskeletal pain and disability in older adults in Western society. Ginger therapy has potential for use in people with OA for whom conventional treatments provide insufficient pain relief or are unsatisfactory due to personal preference, complex co-morbidities and/or adverse effects. Topical ginger therapy is a convenient, simple and economical option that needs to be considered in the care of the aged with OA.

The data from this study will be utilized in the design of a randomized placebo-controlled trial of the Ginger Patch.

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