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Assessing the feasibility of using acupuncture and moxibustion to improve quality of life for cancer survivors with upper body lymphoedema

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A B S T R A C T

Purpose: Within a three-step mixed-methods study to investigate using acupuncture and moxibustion (acu/moxa) in the management of cancer treatment-related upper body lymphoedema, Step 2 obtained preliminary data about: 1) whether acu/moxa can improve quality of life, 2) the most troublesome symptoms, and 3) adverse effects.

Methods and sample: An exploratory single-arm observational clinical study included breast (BC) and head and neck cancer (HNC) survivors with mild-to-moderate uncomplicated lymphoedema for ≥3 months, ≥3 months post active-cancer treatment, no active cancer disease, undergoing routine lymphoedema maintenance. Participants received seven individualised treatments (S1), and six optional additional treatments (S2). MYMOP, SF-36 and PANAS were administered at baseline, during each series, and at follow-up 4 and 12 weeks after end-of-treatment. The primary outcome was change in MYMOP scores at the end of each series.

Key results: Of 35 participants recruited, 30 completed S1 and S2, 3 completed S1, 2 were lost to the study. Mean MYMOP profile change scores for BC participants were 1.28 points improvement on a 7-point scale (sd = 0.93, $p < 0.0001$, $n = 25$) for S1; and 1.41 for S2 (sd = 0.94, $p < 0.0001$, $n = 24$). S1 HNC change scores were 2.29 points improvement (sd = 0.62, $p < 0.0001$, $n = 7$); and 0.94 for S2 (sd = 0.95, $p = 0.06$, $n = 6$). Changes in some SF-36 scores for BC participants were significant to 4 weeks after treatment. No serious adverse effects were reported.

Conclusion: This small study suggests acu/moxa is an acceptable adjunct to usual care for cancer survivors with lymphoedema. Further rigorous research is warranted to explore the effectiveness of acu/moxa in reducing the symptom burden.

Introduction

Cancer treatments, specifically surgery and radiotherapy, are the main cause of secondary lymphoedema in the developed world (Lymphoedema Framework, 2006). Chronic swelling affecting the limbs, trunk, head, neck, breast, or genitalia, lymphoedema arises when reduced capacity of the lymphatic transport system causes accumulation of fluid in the tissue spaces (International Society of Lymphology, 2003). Secondary lymphoedema is a common side effect of damage to the lymphatics caused by treatments for many cancers, including breast and head and neck cancers (Keeley, 2000a; Withey et al., 2000). Studies report occurrence ranging from 3% to 89% of breast cancer (BC) patients (Williams et al., 2005), with prevalence of arm oedema calculated to be 29% of BC patients (Moffatt et al., 2003) and incidence generally accepted to be 30% (Hayes et al., 2008). Secondary lymphoedema is reported in 10–40% of head and neck cancer (HNC) patients (Bjordal et al., 2000), and while usually temporary, it may remain longstanding and unresolved (Withey et al., 2000). A generally incurable condition, lymphoedema causes significant physical and psychological morbidity, necessitating life-long care to manage and prevent it progressing (International Society of Lymphology, 2003).

Multi-disciplinary strategies are required to reduce the onset, progression, and complications (Lymphoedema Framework, 2003, 2006). Patients at risk must learn to minimise the possibility of developing lymphoedema, and to identify early signs and symptoms. Once diagnosed, interventions aim to reduce size, physical dysfunction, and complications and include specialised bandaging and massage, wearing of compression garments, and daily adherence

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to self-care programmes (Keeley, 2000b). Occurring up to 20 years or more after surgery (Pain and Purushotham, 2000), lymphoedema can worsen with inadequate care. Cellulitis, an associated infection, may require long-term antibiotic treatment and hospitalisation, lead to recurrent cellulitis, and impact healthcare resources (Al-Niaimi and Cox, 2009; Moffatt et al., 2003).

Lymphoedema is disabling, disfiguring and distressing. Swelling causes discomfort, with associated restriction of movement and function. Disfigurement and the wearing of specialist bandaging may cause social embarrassment, body image problems, and low self-esteem. "One of the most troublesome and feared consequences of breast-cancer surgery"(Ganz, 1999), the psychosocial effects for women are well documented internationally (Ahmed et al., 2008; Chachaj et al., 2010; Dawes et al., 2008; Johansson et al., 2003; Morgan et al., 2005; Towers et al., 2008; Tsuchiya et al., 2008). For HNC patients, disfigurement is obvious, and together with functional impairment can cause complex psychosocial problems (Smith and Lewin, 2010; Withey et al., 2000). A "forgotten complication" of cancer treatment (Farncombe et al., 1994), there is a need for improved treatment for people with lymphoedema. This should address quality of life, as well as the complex physiological and psychosocial problems associated with a chronic condition in patients with multiple comorbidities (McWayne and Heiney, 2005; Moffatt, 2008; Towers, 2008). Multidisciplinary approaches are required to address this range of needs.

Complementary and alternative medicine (CAM) is a popular choice of people with cancer, with recent European studies reporting usage by 35.9% of cancer patients (Molassiotis et al., 2005a), 44.7% of BC patients (Molassiotis et al., 2006) and 22.7% of HNC patients (Molassiotis et al., 2005b). Acupuncture is a form of traditional Chinese medicine chosen by many people with chronic disease who value it for symptom improvement and improved physiological and psychosocial coping (Cassidy, 1998; Gould and Macpherson, 2001; Paterson and Britten, 2003). Based on our previous research, which demonstrated measurable improvements in wellbeing, improved quality of life, and symptom relief for BC patients experiencing side effects of adjuvant hormonal treatment (de Valois 2006 PhD thesis, de Valois et al., 2010), we wanted to investigate whether acupuncture could be used in the management of lymphoedema. In this study we have used acupuncture and moxibustion, two modalities of traditional acupuncture practice (de Valois, 2007). Acupuncture needling is the superficial insertion of fine, solid, stainless steel needles under the skin to stimulate sites on the body known as acupuncture points. Moxibustion uses the application of heat (usually from the smouldering herb *Artemesia vulgaris* or mugwort) to stimulate the points by warming them. In this article, we refer to these processes as "acu/moxa".

Acupuncture in relation to lymphoedema is controversial. People with or at risk of lymphoedema are advised to reduce the possibility of introducing infection and exacerbating swelling by avoiding accidental and non-accidental skin puncture (NASP) in the affected area (Cole, 2006; Lymphoedema Framework, 2006). In lymphoedema and cancer policy documents, acupuncture is not contraindicated and the guidance is the same as for all NASP interventions, in that needling the affected area should be avoided (Filshie, 2001; Tavares, 2003). However, much popular literature advises lymphoedema patients to avoid acupuncture altogether (Hansard, 2010; O'Connor, 2008; UKlymph.com, 2002).

Furthermore, there is scant evidence for using acupuncture or moxibustion in lymphoedema management. A small Japanese study reported successful outcomes in using acu/moxa both as treatment ($n = 12$) and prophylaxis ($n = 12$) for lower limb lymphoedema associated with treatment for gynaecologic cancers (Kanakura et al., 2002). Brazilian researchers reported significant improvements in range of movement, degree of lymphoedema, and discomfort in 29 BC patients treated with acupuncture (Alem and Gurgel, 2008). Results from these uncontrolled exploratory studies suggest the interventions were safe and warrant further research.

Acupuncture is a safe procedure when carried out by trained professionals (MacPherson et al., 2001; White et al., 2001). Adverse effects are usually minor, transient and may include mild pain, bruising or bleeding at the needling site; tiredness after treatment; and, rarely, nausea or feeling faint. Similarly, moxa treatment is safe when carried out by a trained professional, and there is little discussion in the literature about safety issues.

Objectives

Following Medical Research Council (MRC) guidelines for researching complex interventions (Craig et al., 2008a, b), this three-step patient-centred exploratory study used mixed-methods to investigate the feasibility of using acu/moxa to promote well-being and improve quality of life for BC and HNC survivors with secondary lymphoedema. In Step 1, focus groups with patients and clinicians explored the acceptability of acu/moxa. Step 2 comprised a single-arm observational clinical study using before-and-after measurements. In Step 3, participants of Step 2 took part in focus groups to discuss their experiences of acu/moxa treatment. The qualitative data collected in Steps 1 and 3 are reported elsewhere (Verhoef and Boon, 2010). In this paper, we report the quantitative results of Step 2, the clinical treatment phase, which sought answers to three key questions:

1. Can acu/moxa improve wellbeing in cancer survivors with lymphoedema?
2. What symptoms are most troublesome for these individuals?
3. Is acupuncture a safe intervention for people with lymphoedema?

As an early stage exploratory study, we also wanted to evaluate the acceptability of acu/moxa to people with lymphoedema, test recruitment, and assess outcome measures in preparation for a larger study (Craig et al., 2008b).

It was not an aim to treat the lymphoedema. Acu/moxa was an adjunct to usual care, and participants continued the maintenance programme prescribed by the nurse specialist. Needling was avoided in the affected area, as recommended in the literature (Filshie, 2001; Tavares, 2003). For BC participants, this restriction included the torso quadrant on the affected side, as per findings from our focus groups with lymphoedema patients and their medical healthcare professionals in Step 1 of the overall study (reported elsewhere).

We also chose not to focus on changes in swelling as an outcome. The challenges of obtaining meaningful and consistent measurement are well documented, and many patients prioritise reducing the symptom burden, increasing function, and improving quality of life over changes in swelling (Pillar, 2007; Ridner, 2005; Sitzia et al., 1997). We monitored changes in volume as a safety measure, to ensure that acu/moxa treatment did not exacerbate swelling.

Methods

Study design, setting and subjects

The design of this single-arm observational study with before-and-after measurements was informed by findings from focus groups with patients and healthcare professionals, who stated their preferences for treatment in Step 1 of the overall study. To test