



Research paper

Meditative qigong relieved symptom severity and interference among patients with breast carcinoma receiving chemotherapy



Ping-Ho Chen^a, Sheng-Miauh Huang^{b,*}, Chen-Jei Tai^c, Li-Yin Chien^d, Pei-Ju Lien^e, Yu-Hsien Chen^f

^a Department of Traditional Chinese Medicine, Taipei Medical University Hospital, Taipei, Taiwan

^b Department of Nursing, Mackay Medical College, New Taipei City, Taiwan

^c Department of Traditional Chinese Medicine, Taipei Medical University Hospital and Department of Medicine, Taipei Medical University, Taipei, Taiwan

^d Institute of Community Health Care, National Yang-Ming University, Taipei, Taiwan

^e Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan

^f Department of Nursing, Tzu Chi University of Science and Technology, Hualien City, Taiwan

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ABSTRACT

Introduction: Qi, known as meridian energy, runs throughout the human body via meridian vessels. This study compared symptom severity, interference, and meridian energy among breast carcinoma patients who had training in meditative qigong with those who did not.

Methods: A quasi-experimental study was conducted with 57 patients receiving routine care and 33 receiving qigong training. Data was collected before the start of treatment and at 4 and 12 weeks after the start of treatment. Symptom severity, interference, and meridian energy were assessed. The generalized linear mixed model was used to analyze the independent effect of meditative qigong after adjusting for potential confounders.

Results: At 12 weeks, patients in the qigong group had lower symptom severity and interference scores than those in the control group (symptom severity: $\beta = -1.13$, $p < 0.01$; symptom interference: $\beta = -1.10$, $p = 0.02$). Whether or not the participants were in the qigong group, there were no significant differences in the meridian energy over time. Higher meridian energy was related to lower symptom severity and interference (symptom severity: $\beta = -0.01$, $p = 0.01$; symptom interference: $\beta = -0.01$, $p = 0.01$).

Conclusions: The indications from this study show that cancer patients undergoing chemotherapy may benefit from learning qigong before treatment.

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1. Introduction

Based on the theory of traditional Chinese medicine (TCM), qi (meridian energy) is the basic element that constitutes the cosmos. It runs throughout the human body via Meridian vessels and refers both to the refined nutritive substance that flows within the human body as well as to its functional activities. It changes, transforms, produces everything in the world, including the human body and life activities [1]. People are deemed as being ill when they have insufficient qi. Zheng is a pattern that serves as the guide for TCM treatment. Xu zheng refers to a deficiency in qi,

fluid, or blood. Yang-xu zheng is defined as an insufficiency of qi and is common among cancer patients. It is also related to worsening disease symptoms [1–4].

Breast carcinoma is the most commonly diagnosed cancer among women worldwide [5,6]. Cancer treatments including surgery, chemotherapy, radiotherapy, and endocrine therapy have achieved the great strides in prolonging the lives of patients with breast carcinoma [7,8]. However, cancer patients still suffer bothersome symptoms that increase in frequency during chemotherapy [9,10]. Breast carcinoma patients who receive chemotherapy experience severe symptoms and a poor quality of life [11,12].

Qigong, a form of gentle self-healing exercise, is one of the famous mind-body exercises [13]. It involves the recognition, development, and use of Qi [14]. Qigong involves meditation on qi and activities designed to promote the flow of qi [14,15]. TCM, complementary and alternative medicine, and western healthcare providers encourage cancer survivors to engage in qigong

* Corresponding author at: No. 46, Section 3, Zhongzheng Road, Sanzhi District, New Taipei City 252, Taiwan. Fax: +886 2 23261267.

E-mail addresses: hodazen@gmail.com (P.-H. Chen), r910862@yahoo.com.tw (S.-M. Huang), chenjtai@tmu.edu.tw (C.-J. Tai), lychien@ym.edu.tw (L.-Y. Chien), prlain@vghtpe.gov.tw (P.-J. Lien), lucychen@ems.tccn.edu.tw (Y.-H. Chen).

programs as a form of safe and effective exercise [16–18]. Currently, qigong is also widely used by cancer survivors to reduce symptoms and cope with the disease and treatment-related symptoms after cancer treatments [19,20]. During cancer treatment, evidence indicates that qigong with physical activities may have therapeutic effects in the management of symptoms among women with breast carcinoma who are receiving radiotherapy [21]. The health benefits of meditative qigong, particularly in patients undergoing chemotherapy, are not well studied. Only one quasi-experimental study indicated that qigong alleviated symptoms and psychological distress among breast carcinoma patients receiving chemotherapy over a 3-week monitoring period [22]. A systematic review showed that qigong had positive effects on cancer-specific quality of life, fatigue, immune function, and cortisol levels among cancer patients [23]. However, there is currently a lack of sufficient evidence to support qigong improving other clinical endpoints [24]. Thus, we conducted this study to address this knowledge gap and to explore the effects of qigong on symptom severity and interference in patients with breast carcinoma during chemotherapy over a 12-week monitoring period.

2. Methods

2.1. Design

A quasi-experimental design was applied to a time series (two-group, pre-test–post-test) study. The study was approved by the Institutional Review Board at the study hospital (IRB no. 2012-12-016BC) before the study was conducted. We obtained signed consent from all participants prior to commencing the study. All potential participants who met the study criteria were informed of the research purposes, intervention benefits, and risks, procedures, and the instruments that would be used. Data was collected before treatment and at 4 and 12 weeks after the start of chemotherapy using corresponding medical chart reviews and face-to-face interviews with structured questionnaires.

2.2. Sample

Based on the pilot results, we assumed the effect size was 0.3, and the correlation between repeated measures was 0.5. When the power was 0.8, the number of repeated measurements was three, the number of groups was two, and the total sample size needed was 62 participants (31 in each group). We recruited adult women with breast carcinoma who were about to start chemotherapy. The exclusion criteria included musculoskeletal disease, stroke, and other diseases known to affect physical activity. Finally, 94 patients met the inclusion criteria. All patients completed the first interview, and 90 patients (95.7%) completed the study. Of the 90 patients, 57 patients performed routine care while 33 performed qigong. The two groups performed the interventions at different times that did not overlap to avoid contamination of the interventions. The time point allocating the participants to the control group was earlier. The reason for the larger number of participants in the control group was that the time needed to perform the control program was longer than that needed for the Qigong program (9 months vs. 6 months).

2.3. Interventions

All participants in the control group did routine exercise designed by clinicians in the hospital. They were asked to complete finger and palm exercises, shoulder exercises, and hand lifting. In addition, hair combing, pendulum exercises, wall hand climbing, and pulley tugging were performed. Chest flies, towel exercises, rod lifting, pushing on the wall, and putting on a brassiere were

also included. The participants in the qigong group performed both routine exercise and meditative qigong. The qigong program was developed by two qigong experts, two medical doctors from the general surgical department, and two oncology case managers. It consisted of relaxation and clear and detailed meditation [25]. The participants in the qigong group performed qigong in the sitting or standing position. With qigong, the participants learned to image the existence of qi. They learned to guide the qi from their nose to their lower abdomen and their open arms while inhaling. Next, they guided the qi from the lower abdomen to their mouth and closed their arms slowly when exhaling. The ratio of inspiration/expiration time was 1/3.

All participants had one training session before beginning the routine exercise or qigong program. They were asked to perform their postsurgical exercise (controls) or qigong, three times per week for 12 weeks; each session lasted 30 min and was conducted at home by the participants themselves. A trained research assistant led and monitored the study. To support participant engagement in a home-based exercise program, the trained research assistant contacted all of the participants each week by telephone for 12 weeks during the program.

2.4. Measurements

The study variables included demographics (age, religion, marriage, employment, and family income), disease and treatment characteristics (disease history, site of lesion, cancer stage, and type of mastectomy), use of complementary and alternative medicine (CAM), meridian energy, symptom severity, and interference. The US National Center for Complementary and Alternative Medicine (NCCAM) classification was applied to collect data on the different types of CAM [13]. We collected data on demographics, disease, and treatment characteristics, and use of CAM before the start of the chemotherapy. The meridian energy, symptom severity, and interference data were collected before chemotherapy and at the 4th and 12th weeks after the start of chemotherapy.

19-item MD Anderson Symptom Inventory-Taiwanese version (MDASI-T) was used to measure the symptom severity (13 items) and interference (6 items) characteristics of the participants. The 13 single-item measures of symptom severity are fatigue, sleep disturbance, pain, drowsiness, poor appetite, nausea, vomiting, shortness of breath, numbness, difficulty remembering, dry mouth, distress, and sadness. The six interference items assess the extent to which symptoms interfere with general activities, mood, normal work, relations with other people, walking, and enjoyment of life. The MDASI-T is a multi-symptom, patient-reported outcome measure for clinical and research use [26]. It is a reliable, valid, and sensitive instrument for measuring cancer-related symptoms among Taiwanese cancer patients. Each item was scored on an 11-point Likert scale, ranging from 0 to 10. A higher score indicated a worse symptom severity and symptom interference.

The electrical conductivity measurements of the meridian energy provide information about qi [27–31]. In our study, we defined qi in the human as the meridian energy. Meridian energy was measured using MEAD (Meridian Electroacupuncture Analysis Device) Me-Pro equipment (Hanja International CO. Ltd, Taoyuan, Taiwan). It is similar to machines used in previous studies [27–29]. Before the meridian energy measurements, the patients removed their shoes, socks, metal objects, and cell phones; then, they rested for 10 min before the measurements started. The level of the meridian energy was determined using the MEAD values for each meridian point that lay along the 12 meridians of the body. It yielded electrodermal measurements of the 24 meridians [4,27]. The meridian energy of each meridian ranged from 0 to 200 μ A.

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