



Guided imagery effects on chemotherapy induced nausea and vomiting in Iranian breast cancer patients



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ABSTRACT

Background: The objective of this study was to examine the effect of guided imagery on chemotherapy induced nausea and vomiting in breast cancer patients.

Design: This was a quasi-experimental study in which a group of sample was evaluated pre and post intervention. A convenience sample of 55 eligible breast cancer patients enrolled to participate in this study after giving informed consent. They completed the Morrow Assessment of Nausea and Vomiting, before and after the intervention. The intervention consisted of listening to the two guided imagery tracks.

Findings: After the intervention, patients at the third session of chemotherapy had significantly lower mean scores in the frequency and severity of nausea and vomiting pre and post chemotherapy ($p < 0.05$). **Conclusions:** Guided imagery, as an inexpensive and noninvasive method, is particularly appealing option to alleviate chemotherapy induced nausea and vomiting. It can be used in addition to pharmacological strategies and can be implemented by patients independently with sufficient training. Therefore, this therapy will considerably improve severity and frequency of chemotherapy induced nausea and vomiting.

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1. Introduction

Breast cancer incidences are increasing worldwide. Approximately one in eight American women will develop breast cancer during her lifetime [1]. Breast cancer also is the most common cancer in Iranian women and mainly affects them about a decade earlier than western countries [2]. Currently, chemotherapy remains the first option to control the postoperative progression of cancer to increase the survival rate [1].

Chemotherapy-induced nausea and vomiting (CINV) are the most problematic and serious side effects among patients with cancer [3–5] and its prevalence has been reported between 54% and 96% [4].

Despite numerous advances in the treatment, CINV continues to remain a challenge and distressing side effect to a proportion of patients undergoing systemic anti-cancer treatment [6,7]. On the other hand, standard pharmacological methods of antiemetic therapy are inadequate for dealing with these side effects [3,8,9]. According to Karagozoglou et al. (2013) [3] although antiemetic agents are widely used today, approximately 40% of the patients receiving chemotherapy still suffer from nausea and 75% from vomiting. Vanbockstael et al. (2015) [5] concluded that, despite improvements in pharmacological antiemetic treatment, 52.4% of patients experience CINV during the first cycle of chemotherapy [4].

If CINV is not controlled properly, it leads to further complications including effects on food intake [10], anorexia and metabolic imbalances [3,4] weight loss, social interactions, dehydration, difficulty sleeping [10] and anxiety [4,10]. These complications can have significant negative impact on patients' quality of life [3,4,10].

Some of the important recent approaches used for controlling

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nausea and vomiting are alternative and complementary therapies. These therapies can be applied as independent therapy methods or along with other standard therapy methods for cancer patients [4]. Evidences also suggest that, the addition of alternative and complementary therapies can improve control of anticipatory, acute and delayed chemotherapy-induced nausea and vomiting. These integrative interventions need to be included in standard clinical practice guidelines [11].

complementary and alternative therapies such as mind-body interventions are techniques that focus on the interactions between the brain, mind, body and behavior in which emotional, mental, social, spiritual and behavioral factors can directly affect health [12]. These therapies include hypnosis, biofeedback, relaxation techniques, meditation, and guided imagery [13].

Guided imagery is a widely used complementary and alternative therapy [14] and is becoming increasingly important in dealing with chemotherapy-induced nausea and vomiting [3]. Imagery has been defined as a dynamic, psychophysiological process in which a person imagines and experiences an internal reality in the absence of external stimuli [15]. Guided imagery is defined as the generation or recall of different mental images, such as perception of objects or events, and can engage mechanisms used in cognition, memory, and emotional and motor control [14]. Guided imagery's effectiveness have been studied in many different methodologies for controlling cancer and various treatment related side-effects including pain [12,13], stress [16], fatigue [12,16,17], anxiety [3,17,18], depression [4] and sleep disturbance [12].

Lee et al. (2013) [16] examined the effect of guided imagery on stress and fatigue in patients with thyroid cancer undergoing radioactive iodine therapy. They showed that, guided imagery can be recommended as an effective intervention to thyroid cancer patients with stress and fatigue. They also proposed more studies are necessary to examine the efficacy of guided imagery in a more diverse patients and setting.

Charalambous et al. (2015) [18] assessed the effectiveness of guided imagery and progressive muscle relaxation as stress reducing interventions in patients with prostate and breast cancer who were undergoing chemotherapy. They found that intervention group's anxiety and depression scores were significantly decreased compared to the control group.

In a study, Mustian et al. (2011) [11] provided an overview on treatment of nausea and vomiting during chemotherapy. They concluded that adequate control of nausea remains a challenge and requires more research to be conducted on this subject.

In an experimental study, Karagozoglu et al. (2013) showed that, music therapy and visual guided imagery reduced the severity and duration of CINV significantly. They concluded that, since cancer patients, who suffer from nausea/vomiting, cannot cope sufficiently with intense and repeated nausea and vomiting, they decide not to continue the treatment. Therefore, more studies are needed to determine the effect of guided imagery on CINV [3].

Nausea and vomiting are two of the most problematic side effects that patients experience during chemotherapy. While newly available treatments have improved our ability to manage nausea and vomiting, anticipatory and delayed nausea and vomiting are still a major problem for patients receiving chemotherapy. Many patients with cancer will delay or refuse future chemotherapy treatments and contemplate stopping chemotherapy altogether because of their fear of experiencing further nausea and vomiting [11,19].

Although the nature, intensity, and duration of treatment vary in different types of cancer, it is essential that various types of complementary and alternative therapies to be exclusively studied in each type of cancer. Accordingly, more studies are necessary to examine the efficacy of guided imagery in a more diverse setting [16].

According to Menzies et al. (2011) further scientific research is needed to use standard guided imagery interventions in a variety of different populations [17]. Therefore, more studies are needed to determine the effect of guided imagery on CINV in patients with cancer.

Based on our knowledge, current study is the first experimental research to assess the effectiveness of guided imagery in managing CINV in breast cancer patients in Iran. The rationale for this research was to continue investigations into the possible palliative effects of guided imagery on two of the most problematic chemotherapy side effects. Therefore, this study tests the hypothesis that guided imagery reduces duration and severity of chemotherapy-induced nausea and vomiting in breast cancer patients.

2. Method

2.1. Design and participants

In this quasi-experimental study, 55 breast cancer patients were participate based on pilot study. Power calculations showed that, a sample size of 55 patients would have 80% power to detect an effect size of approximately 0.5 ($\alpha = 0.05$).

The inclusion criteria included: being 18–70 years old, being at stage I, II, or III of breast cancer, experienced nausea and vomiting within 24-hour period after the first course of chemotherapy and being told to undergo the second course of chemotherapy to receive 30–90 min sessions of intravenous chemotherapy infusion. Patients who were administered the same doses of the same chemotherapy agents and antiemetic both were also eligible for inclusion. Having psychological or nervous system disorders (Bipolar disorder, Epilepsy, Major nervous system disorders such as multiple sclerosis and myasthenia gravis), having hearing impairment, using sedative medication and gastrointestinal or nervous system cancer, were considered as exclusion criteria. A convenience approach was used for sampling. Having explained the objectives of the study and its methodology, eligible subjects were asked to sign a consent form at the first visit. Patients at the second session of chemotherapy were chosen as control group and the same group was chosen as intervention group at the third chemotherapy session [3].

2.2. Instruments

Data were gathered through demographic information form including age, marital status, stage of cancer, level of education. Morrow Assessment of Nausea and Vomiting was used for evaluation of nausea and vomiting. This tool was developed by Morrow (1992) and was used in many studies for the self-assessment of the severity and frequency of nausea and vomiting. Patients could evaluate nausea and vomiting occurring in two periods: before and after the chemotherapy. This instrument was used in more than 12 studies and its reported reliability was (0.66–0.78) [19]. The form included the following 16 questions: suffering nausea and vomiting in one or both periods (yes, no), severity (very mild, mild, moderate, severe, very severe and unbearable), duration (in hours) and the period during which patients suffered worst nausea/vomiting, how many hours before and after chemotherapy the first nausea/vomiting occurs, medication taken for nausea/vomiting (yes, no) and if yes, how beneficial the medication was (a lot, quite a lot, somewhat, not at all).

2.3. Intervention

Prior to the starting of the second chemotherapy course, and based on the inclusion criteria, patients entered to the study. In the

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