

# The Effect of Sucking Bits of Ice Containing (mentha) Mint Extract on Xerostomia, During Chemotherapy in Patients with Breast Cancer

Mohammad Haddadi,<sup>1</sup> Hamid Reza Hashemifard,<sup>2</sup> Javad Ganjloo,<sup>3,\*</sup> and Yasser Tabarraie<sup>4</sup>

<sup>1</sup>Master Student of Nursing Training, Internal Trend of Surgery

<sup>2</sup>Vasei Clinical Oncology Expertise, Training, Research, and Medical Center

<sup>3</sup>Department of Nursing and Midwifery, Sabzevar University of Medical Sciences, Sabzevar, Iran

<sup>4</sup>Master of Statistics, Health Department, Sabzevar University of Medical Sciences, Sabzevar, Iran

\*Corresponding author: Javad Ganjloo, Department of Nursing and Midwifery, Sabzevar University of Medical Sciences, Sabzevar, Iran. E-mail: jganji@yahoo.com

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## Abstract

**Background:** Breast cancer is the most common and fatal cancer among women. Numerous methods, included surgery, radiotherapy, and chemotherapy, are applied to cure cancer. Chemotherapy, as a common therapeutic method, results in some physical and mental side effects. Among numerous side effects of chemotherapy, xerostomia is possible.

**Objectives:** This study has been designed to study the effect of sucking ice containing mint extract on xerostomia during chemotherapy.

**Methods:** In this clinical study, 60 patients suffering from breast cancer with chemotherapy were randomly put into two groups of control and ice containing mint extract. Thirty ice bits in 1 cc containing 30 drops of super mint in chemotherapy and 30 cc water were given to experimental and control groups; respectively. Xerostomia was estimated by VAS. Data was analyzed by SPSS 16.

**Results:** The findings indicate that there is a significant difference in the xerostomia averages of 17.33 and 46 in the experimental and control groups; respectively ( $P < 0.000$ ).

**Conclusions:** According to the study results, ice containing mint extract has an effect on xerostomia caused by chemotherapy.

**Keywords:** Ice Containing (mentha) Mint, Xerostomia, Chemotherapy, Breast Cancer

## 1. Background

Cancer is a basic health problem in the USA and all around the world (1). According to the latest news by UNESCO, in 2011, cancer was the second cause of death after heart-vascular diseases (2, 3).

Breast cancer is the most prevalent type of cancer among women. According to the UNESCO statistics, in every 10 - 15 women, one person suffers from breast cancer. In comparison to other countries, the age average of suffering from breast cancer in Iran is 10 years younger than others (4).

Numerous methods are applied to treat breast cancer, including surgery, radiotherapy, and chemotherapy. Chemotherapy is the most basic, common, and the oldest therapy used in treating cancer (2). Following cancer, chemotherapy has many effects on patients' quality life, and results in some disorder in patients' physical, mental, social, and spiritual welfare. Diarrhea, reduced blood pressure, sleeplessness, tiredness, pain, mucus, xerostomia, constipation, nausea, vomiting, etc. are among physical side effects of chemotherapy (2, 5).

Xerostomia is another physical side effect of chemotherapy. Xerostomia is a clinical problem created as a result of decreased production of saliva (6).

Xerostomia is a very prevalent sign that is observed in 10% - 26% of men and 10% - 33% of women (7). It has a considerable effect on patients' quality life (8) and can result in some affects included tooth caries, mucus smart pain, and disorder in devouring and talking (9). Patients with xerostomia not only suffer from xerostomia, but also they suffer from unsuitable function of nourishing, devouring, talking, etc. (6). Various methods have been suggested to decrease xerostomia. Usually, two methods, providing moisture and stimulating saliva secretion, are accomplished to cure xerostomia. As an example, applying eatable milk, sucking small ice bits, free-sugar candies, and candies with citric acid are non-drug therapies, and using pilocarpine as a therapeutic method are among that materials that are helpful in decreasing xerostomia (10).

Sucking ice bits can keep the mouth damp for a longer period of time, stimulate sensitive oropharynx receiver to warmth, and decrease thirst and xerostomia. Also, mint is used as a flavoring in food, tea, toothpaste, lotions, and drugs. Naturally, mentol isomeric is in mint in a great extent. Menytol stimulates cold receivers in the mouth and on the skin. A hypothesis points that oropharynx stimulation affects thirst, and mentol as a nerve stimulator can help in relieving thirst (11). This study has been accom-

plished to determine the effect of sucking ice bits on xerostomia during chemotherapy in patients with cancer at the Mashhad Omid hospital.

## 2. Methods

This study is a clinical experiment. Among patients with cancer referred to the oncology ward of Mashhad Omid therapy center in August, September, and October of 2015, sixty patients with Adriamycin and cyclophosphamide regime were selected and were divided into two groups by a random devotion method. Personal information forms from research units (age, education, residence location, disease grid, married life) and the VAS numerical scale to consider xerostomia were applied as data collecting tools. Written, informed consent to take part in the study, suffering from breast cancer, vomiting, normal devouring, ability to read and write, and vision ability were entering criteria. When a written introduction to accomplish a median research at Sabzevar Medical University was obtained and was presented to Mashhad Omid Hospital dependent to Mashhad Medical University under the supervision of an oncologist to study xerostomia in qualified patients with cancer referred to the chemotherapy ward of the hospital, the present study was accomplished. Patients suffering from breast cancer were divided into two groups of control and intervention. At first, xerostomia was studied in both groups through visual analog scale (VAS). In addition to routine activities, 30 cc water was given to individuals in the control group just five minutes before and during chemotherapy, when chemotherapy was finished, and xerostomia was studied. Also, in addition to routine activities, 30 ice bits containing 30 drops of super mint (mint extract) in  $1 \times 1$  containing 1 cc water and a mint drop were given to individuals of the intervention group 5 minutes before and during chemotherapy. When chemotherapy was carried out, xerostomia in both groups was recorded. Finally, the results of both groups were compared. Data was analyzed using SPSS software and t-test.

## 3. Results

The research units of the present study were composed of 60 qualified patients with breast cancer. Personal and clinical information in both groups are as follows.

### 3.1. Personal Information in Each Group

Individuals' average age and criterion deviation in the control group were 38.7 years and 7.74, respectively. The average age and criterion deviation in intervention group

members were 41 years and 8.25, respectively. By applying t-test with 95% confidence, no significant difference was observed between averages ( $P = 0.27$ ).

Education level in both groups was not significant by chi squared test with 95% confidence ( $P = 0.606$ )

No significant difference was found in disease intensity by applying chi squared test with 95% confidence ( $P = 0.447$ )

68.3% and 31.7% of individuals were married and single; respectively. By applying chi squared test with 95% confidence, no significant difference was found ( $P = 0.781$ ).

### 3.2. Clinical Information in Each Group

The average and criterion deviation of xerostomia before individuals' intervention in the control group were 35 and 16.135, respectively, the average and criterion deviation of xerostomia before individuals' intervention in the ice containing mint group were 35.33 and 19.965, respectively (Table 1).

**Table 1.** The Average and Criterion Deviation of Xerostomia Before Intervention

Group	Average	Criterion Deviation
Control	35	16.135
Ice containing mint	35.33	16.965

By applying t-test, no significant difference was observed in xerostomia between two groups before intervention ( $P = 0.938$ ).

When intervention was accomplished by individuals, the average and criterion deviation of xerostomia in control group were 46 and 19.226, respectively, while in the ice containing mint group the average and deviation were 17.33 and 12.298, respectively (Table 2).

**Table 2.** The Average and Criterion Deviation of Xerostomia after Intervention

Group	Average	Criterion deviation
Control	46	19.226
Ice containing mint	17.33	12.298

By applying t-test, there was significant difference between the two groups ( $P = 0.000$ ).

## 4. Discussion

This study was accomplished to consider the effect of sucking bits of ice containing mint on xerostomia during

chemotherapy in patients with cancer. The results indicated that xerostomia in the intervention group (ice containing mint) was significantly less than the control group ( $P = 0.000$ ). No intervention study about the effect of ice containing mint on xerostomia during chemotherapy in patients with cancer has been reported previously. Therefore, the results of the present study were compared with other studies accomplished on other patient groups.

In the study by Masloom et al. (2013) to consider the effect of ice bits on thirst and drinking in patients under hemodialysis, the results suggested that ice bits had no effect on thirst in patients under hemodialysis (12). The results of the present study do not coincide with Masloom's study. It should be noted that not all factors affecting thirst have been studied here, and since the liquid and ice bits table were filled out by patients, this matter can increase error. Also, statistical tests of variance analysis with repetitive amounts and dual t-test were applied, which are different from the statistical analysis method of the present study.

A study by Arouni et al. (2012) considered the effect of ice bits containing mint to control thirst after surgery, and the results indicated that there was less thirst in the group applying ice bits in comparison to the group with no ice containing mint. Therefore, the results of the present study coincide with Aroni's study (13).

Salata et al. indicated in her study that when ice bits are sucked for 30 minutes by patients suffering from too little water, drinking water decreased in patients as a result of stimulation in sense receivers (14).

In this study, ice bits containing mint were able to affect xerostomia during chemotherapy, decrease xerostomia in patients, and achieve satisfaction in patients. So, it is suggested to use ice bits containing mint to cure other side effects by chemotherapy and in other cancer groups.

#### 4.1. Conclusions

According to the study results, it is suggested to apply ice containing mint as a non-aggressive, simple, cheap method with no side effects besides drug therapy to recuperate xerostomia in patients with cancer.

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