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A Systematic Review Study on Interventions to Reduce Nausea and Vomiting Caused by Chemotherapy

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ABSTRACT

Introduction: *The increasing importance of examining changes in the expression of genes in the development of various types of cancers and the emergence of new biotechnological methods has led to such molecular studies to be of particular importance in studies on the etiology of the disease in recent years. Given that cancer patients have multiple chemotherapy during their healing period and the chemotherapy itself causes a lot of harm to the patient and it affects the person's quality of life and that nausea and vomiting are one of the chronic complications of chemotherapy patients. Therefore, this systematic review was conducted with the aim of determining the interventions for reducing the nausea and vomiting induced by chemotherapy.*

Materials and Methods: *This systematic review was conducted based on the Broom Broome method. The purpose of this method was to achieve the purpose of the study and to enhance the study's thorough understanding and comprehension. The method is based on three steps in the search of texts, data evaluation and data analysis. In the search for texts, post-retrospective studies are examined in four stages in terms of inclusion criteria. And after obtaining the terms of entry into the study, the content of the study is evaluated, and at the end of the analysis of the data.*

Results: *In this study, we investigated the effects of chemotherapy-induced nausea and vomiting on interventions. In one of these studies in the test group, the Negan point wrist massage was performed for 7 minutes twice a day, 12 hours in 24 hours, using ice mold in wet gut, caused a significant reduction in nausea and vomiting, as well as a reduction in the severity of nausea and vomiting. And also, the mean number of nausea in the treatment group was significantly decreased compared with the control group.*

Conclusion: *According to the studies, it can be said that the cardamom aromas therapeutic approach to inhaled essential oil is recommended to reduce the severity of chemotherapy-induced nausea in cancer patients, but consuming chamomile extract reduces chemo-induced nausea but is not effective in reducing vomiting. Also, studies have shown that muscle use reduces nausea in children with chemotherapy malignancy, but they do not affect their vomiting. It is also suggested that nurses use ear acupuncture techniques as a complementary method to relieve chemotherapy-induced nausea and vomiting.*

Keywords: *Cancer patients, chemotherapy complications, cancer, nausea, vomiting*

INTRODUCTION

The increasing importance of examining changes in the expression of genes in the development of various types of cancers and the emergence of new biotechnological methods has led to in recent years, studies on the etiology of this disease have found such molecular studies of particular importance (1). Despite the successes that have recently been made in the field of control and prevention of communicable diseases, the incidence of chronic illness has risen. And cancer as a chronic disease after accidents and unintentional deaths is the third leading cause of death in children (2,3). The pattern of occurrence of different types of cancer varies among different populations and is associated with several factors (4).

One of the most important causes of cancer is diabetes. It is a chronic, metabolic and genetically heterogeneous disease characterized by increased levels of blood glucose and carbohydrate metabolism, protein, and lipids. And because of the increasing number of people affected by the disease, it has become a major public health problem in the world, especially in Asia, so the World Health Organization has

called it a "silent epidemic" (5-19). The prevalence of this disease in Iran, according to statistics released by the health department of the Ministry of Health in a population over the age of 30, is more than 14% or more in the female population. Diabetes complications can lead to increased mortality in people with diabetes, which causes high costs for individuals and society. Today, diabetes is one of the most important health and socio-economic problems in the world and many complications include blindness, nephropathy, neuropathy, and cardiovascular disease (20-33). Complications of diabetes are very common among patients. (5). Among diabetic patients, depression is one of the most common psychiatric disorders (34). Depression in today's societies, especially among youth and adolescents, has a high prevalence and has many dilemmas (35,36). Depression and occupational stress daily may cause disorders in people's health (37). Diabetes is one of the most common endocrine complications in thalassemic patients (38). Thalassemia syndrome is one of the diseases and problems of today's societies that causes poor quality of life in people with diabetes, and in general it can be said that diabetes causes many complications (39-44).

Epidemiologic evidence suggests that increased type 2 diabetes is associated with an increased risk of certain specific cancers such as breast cancer, colorectal cancer, liver cancer, and pancreatic cancer (45). Patients experience severe psychological reactions after diagnosis of cancer, so one of the sensations that they face after diagnosing a cancer is the impending death (46, 47).

Given that cancer patients have multiple chemotherapy during their healing period and Chemotherapy itself can cause great harm to the individual and greatly affects the person's quality of life and that nausea and vomiting are one of the chronic complications of chemotherapy patients. Nausea and vomiting are the most unpleasant and most terrible complications of chemotherapy. Therefore, this systematic review was conducted with the aim of determining the interventions for reducing the nausea and vomiting induced by chemotherapy.

Materials and Methods

This systematic review was conducted based on the Broom Broome method. The purpose of this method was to achieve the purpose of the study and to enhance the study's thorough understanding and comprehension. The method is based on three steps in the search of texts, data evaluation and data analysis. In the search for texts, post-retrospective studies are examined in four stages in terms of inclusion criteria. And after obtaining the terms of entry into the study, the content of the study is evaluated, and at the end of the analysis of the data.

This study is a systematic review that has been based on articles published in the past 25 years regarding interventions to reduce the incidence of nausea and vomiting due to chemotherapy. The search was carried out in search engines, SID, Magiran, and Google Scholar, Embase, ResearchGate, Science direct, and PubMed in English, Persian and English. In the first phase, 50 articles were found. Of these, 10 related articles that have been published in the last 25 years have been reviewed.

To achieve relevant studies, a wide range of keywords including Cancer patients, chemotherapy complications, cancer, nausea and vomiting was used as a one-to-one search, combined with the method "And" and "OR".

The studies studied were in English or Persian, access to their full text was possible and published over the past 25 years, entered the study, and unnamed and non-academic studies were deleted.

Results

In a study, two groups that were similar in demographic information and nausea severity at the start of the study were studied in one intervention group Intervention with Cardamom aromas and in the other group, the placebo was interviewed, and the results were compared in both groups. The severity of nausea in the cardiopulmonary bypasses was significantly lower than the placebo at the end of the interventions, which was statistically significant. The number of patients with nausea, vomiting and vomiting in the acute phase was similar in the two groups at the beginning of the study however, there was no difference in the number of nausea and vomiting between the groups based on the gender of the patients and the severity of nausea in the chemotherapy drugs (48).

In another study, the two groups did not have a significant difference in mean score of nausea and vomiting. Two hours after chemotherapy, the nausea score of the two groups increased. The increase in the control group was significantly higher than the intervention group.

At the second hour of chemotherapy, the nausea score of both groups was reduced, but at all times, the nausea score in the control group was significantly higher than the intervention group. There was no significant difference in the prevalence of vomiting between the two groups (49).

The results of one study showed that the mean nausea score in the control group increased from 2.97 in the first day to 3.26 and in the intervention group from 3.44 to 1.52, but in the first, second, third day there was no significant difference between the two groups in the fourth group. Therefore, the study of massage reduced nausea, but this decrease was not significant (50).

In a study, two groups of chemotherapy patients who had the same severity of nausea and vomiting at the beginning of the study were studied. The intervention group consumed 250 mg of ginger capsules orally, 4 times a day, at intervals of six hours. The findings of this study showed that the number of vomiting cases in the acute phase was significantly lower in the ginger group (1.2 ± 2.7) compared to placebo (52.5± 3.7). Also, the consumption of ginger capsules did not cause a specific complication compared to placebo (51).

In another study, nausea and vomiting of patients under chemotherapy were studied at the stage. In the first stage, without intervention, in the second phase, music was broadcast to patients using headphones. In the case of nausea, measurements with numerical criteria at 16 and 24 hours and descriptive criteria showed significant difference only at 24 hours after chemotherapy. However, there was no significant difference in vomiting between two stages of chemotherapy (52).

In one study, the patients were divided into two intervention and control groups. In the intervention group, 500 milligrams of ginger capsules were consumed one hour before chemotherapy until five days after that, and the control group only received routine regimens every twelve hours. At the end of the intervention, the findings indicated that ginger did not affect the severity of nausea while it was effective in reducing the number of nausea and vomiting (53).

In another study in the test group, the Negan point wrist massage for 7 minutes twice a day, 12 hours in 24 hours, using ice mold in the wet gash, significantly reduced the frequency of nausea and vomiting and it also reduced the severity of nausea and vomiting. Compared to the control group, the mean number of nausea in the treatment group was significantly decreased (54).

In another study that investigated the effect of massage therapy on vomiting in patients undergoing chemotherapy for breast cancer, there was no significant difference between the intervention and the control group. Therefore, massage reduces vomiting, but this reduction is not significant (55).

In one study, the results showed that the use of acupressure in the ear caused a reduction in severity and frequency of nausea in the acute phase, which was statistically significant (56).

The results of another study showed that the mean of nausea in the intervention group was 1.96, so that the mean nausea in the nauseous group was 2.9 in the control group which represents meaningfulness. However, the number of cases of vomiting in the intervention group was 0.233 and in the control group was 0.266, which was not significant. Therefore, the study of the use of ice-containing peppermint extract on effective chemotherapy-induced nausea is not effective on vomiting induced by chemotherapy (57).

DISCUSSION

The increasing importance of examining changes in the expression of genes in the development of various types of cancers and the emergence of new biotechnological methods has led to in recent years, studies on the etiology of this disease have found such molecular studies of particular importance (1). Despite the successes that have recently been made in the field of control and prevention of communicable diseases, the incidence of chronic illness has risen. And cancer as a chronic disease after accidents and unintentional deaths is the third leading cause of death in children (2,3). Given that cancer patients have multiple chemotherapy during their healing period and Chemotherapy itself can cause great harm to the individual and greatly affects the person's quality of life and that nausea and vomiting are one of the chronic complications of chemotherapy patients. Nausea and vomiting are the most unpleasant and most terrible complications of chemotherapy. Therefore, this systematic review was conducted with the aim of determining the interventions for reducing the nausea and vomiting induced by chemotherapy.

According to study (48), it can be said that the cardamom aromas essential oil aromatherapy is recommended to reduce the severity of chemotherapy-induced nausea in cancer patients. The cardamom is from the family of ginger that is known as queen of spices. Usually it is used to relieve indigestion, cough and itching, prevent and treat gastrointestinal disorders, throat cramps, lung congestion, and oral infections. One of its uses is to relieve nausea and vomiting (58). This study was designed to reduce the severity of chemotherapy-induced nausea.

According to study (49), it can be said that the use of chamomile extract reduces nausea induced by chemotherapy but is not effective in reducing vomiting. From herbs, the chamomile has anti-inflammatory properties and vomit (59). In the pharmaceutical market of the world and Iran, chamomile is used in various forms as an anti-inflammatory, antispasmodic, anti-flatulence, gastric ulcer treatment, antibacterial agent, mouthwash, dry mouth and cracking (60). Which in this study reduced the number of nausea induced by chemotherapy?

According to study (50), it can be said that massage reduced nausea, but this decrease was not significant, which could be due to low nausea rate, so further studies are recommended in this regard.

According to study (51), it can be said that daily intake of one gram of ginger powder in capsule form from three days before chemotherapy up to three days later, along with antiviral and standard vomiting regimen, can reduce the acute phase of vomiting It is great to do that.

According to the study (52), which aimed to determine the effect of music on the reduction of chemotherapy-induced nausea and vomiting in children with malignancy, it can be said that the use of music reduces the amount of nausea in children with malignancy under chemotherapy but does not affect their vomiting.

According to study (53), it can be said that the results of the study show that taking one gram of Ginger in the first five days of chemotherapy does not affect the severity of nausea it reduces the number of cases of nausea and the number of vomiting in the acute phase.

According to study (54), it can be said that ice massage at the Negan point is effective in reducing the frequency and severity of nausea and vomiting in cancer patients undergoing chemotherapy.

According to study (56), the use of acupressure in the gravel, heart, stomach, central nervous system and the source of the nerves, along with the anti-nausea and vomiting regimen, can lead to relief of nausea and vomiting of the acute phase.

Conclusion

According to the studies, it can be said that the cardamom aromas therapeutic approach to inhaled essential oil is recommended to reduce the severity of chemotherapy-induced nausea in cancer patients, but consuming chamomile extract reduces chemo-induced nausea but is not effective in reducing vomiting. Also, studies have shown that muscle use reduces nausea in children with chemotherapy malignancy, but they do not affect their vomiting. It is also suggested that nurses use ear acupuncture techniques as a complementary method to relieve chemotherapy-induced nausea and vomiting.

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Conflict of Interest

There are no conflicts of interest in this article.

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