

## A Systematic Review of Chemotherapy in Cancer Patients: Gastrointestinal Complications and Some Other It's Complications

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### ABSTRACT

**Introduction:** Cancer is now a major public health problem in the world. Unlimited proliferation potential, reduced apoptosis, increased angiogenesis, invasive tissue and metastasis are factors of cancer progression. Chemotherapy in cancer patients has several complications, including gastrointestinal complications, changes in sleep quality, and so on. This systematic review was done to determine gastrointestinal complications of chemotherapy and some other its complications.

**Materials and Methods:** Our intention to carry out this systematic review, is the understand the gastrointestinal complications and some other its complications in patients with cancer. In this study, the standard Broome method was used to analyze the studies. The study was a systematic review using the articles published in the last 32 years about the complications of chemotherapy in cancer patients. The study was done by searching the search engines and scientific databases of articles include research gate, Science direct, Google Scholar, PubMed, in Persian and English.

**Results:** In this research, studies have been performed to show the complications of chemotherapy. One of these studies that were conducted on 80 patients admitted to the Institute of Cancer, who had undergone chemotherapy more than once, and oral lesions were evaluated by assessing the general status of the body and the drugs received. Among the lesions, mucositis was highest (66.2%) and language also was high (55%).

**Conclusion:** It is recommended that members of the health care team, especially nurses, digestive and fatigue complications in patients with chemotherapy-induced cancer, which are very common, consider them and take special care to eliminate or relieve the problem.

**Keywords:** Chemotherapy complications, Cancer, gastrointestinal complications

### INTRODUCTION

The number of cancer cases in the world is still rising and it's growing in emerging countries, including Iran. Success in early detection of cancers, to a large extent dependent on people being aware the early warning signs of cancer (1). Despite the prevalence of cancers in most parts of the world the incidence of cancer in Iran differs from other parts of the world which can be due to environmental, nutritional, genetic and lifestyle differences (2). Considering that lifestyle, food habits, environmental conditions, increased smoking and Lack of physical activity is due to

an increase in cancer, 40% of deaths from cancer can be prevented (3). The pattern of incidence of different types of cancer varies among populations It is related to factors such as occupational, social, cultural and racial (possibly inheritance), geographic and nutritional issues (4).

One of the causes of cancer is diabetes. Diabetes is a chronic, metabolic and genetic disease which is characterized by an increase in blood glucose levels and because of the increasing number of people with this disease in the world, especially in Asia; it is a major public health

problem (5-18). Diabetes The disease is associated with multiple short-term and long-term complications, which in many cases is not reversible. Increased blood glucose can cause chronic and severe complications of diabetes. Complications of diabetes are very common among patients (19-25). Depression is one of the most common psychiatric disorders in diabetic patients (15). One of the most common and debilitating problems of youth and adolescents is depression (26, 27). Depression and occupational stress daily may cause some disorders in people's mental and physical health (28). Diabetes mellitus is one of the most common endocrine complications in thalassemic patients (29). Thalassemia syndrome is one of the hereditary diseases of the blood. Growth disorders, puberty and endocrine abnormalities in thalassemic patients are abundant. Which can be due to complications associated with chronic anemia or frequent blood transfusions and the occurrence of hemochromatosis? (30-35).

Unlimited proliferation potential, reduced apoptosis, increased angiogenesis, invasive tissue and metastasis are factors of cancer progression. Chemotherapy in cancer patients has several complications, including gastro intestinal complications, changes in sleep quality, and so on. This systematic review was done to determine gastrointestinal complications of chemotherapy and some other its complications.

## **MATERIALS AND METHODS**

Our intention to carry out this systematic review, is the understand the gastrointestinal complications and some other its complications in patients with cancer.

To achieve relevant studies, a wide range of keywords including Chemotherapy complications, Cancer and gastrointestinal complications have been used in "one-to-one", and the "AND and the OR" method. The studies studied were in English or Persian, access to their full text was possible and published over the past 32 years, entered the study, and unnamed, no date and non-scientific studies were deleted. This study is a systematic review that has been based on articles published in the past 32 years about the gastrointestinal complications and some other its complications in patients with cancer. It was conducted in English and Persian by searching articles in search engines, sites and authoritative scientific databases Google Scholar, Embase, Research gate, Science direct, Pub Med, and Springer. In the first stage, 41 articles were

found. Of these, 11 related articles that have been published in the last 32 years have been reviewed.

In this study, the standard Broome method was used to analyze the studies. This review study was conducted based on the Broome method. The purpose of this method was to achieve the purpose of the study and to enhance the study's thoroughness and comprehension. The method is based on three steps in the search of texts, data evaluation and data analysis. In the search phase of the texts, the studies after the retrieval were examined in terms of the criteria for entering the study in four stages. After obtaining the terms of entry into the study, the content of the study is evaluated and at the end the analysis of the data was done.

## **RESULTS**

Chemotherapy despite the dramatic effects on the lives of patients with blood cancers has a severe side effects include toxic effects on the oral mucosa. In this study, we reviewed eleven studies that are related with the complications of chemotherapy, especially gastrointestinal complications.

A study was conducted that in this study, they were followed up and treated continuously during the study; a group of complications of treatment were prospectively tracked and recorded. In sum, the most complicated complications were neutropenia (5.3%) among all regimens, followed by complications of GI including nausea and diarrhea (1.5% and 1.3% respectively) (36).

The results of a study were conducted on patients with diabetes, who had undergone chemotherapy more than once, and oral lesions were evaluated by assessing the general status of the body and the drugs received. Among the lesions, mucositis was highest and language also was high (37).

In a study which was done, there was a relationship between age and drug use with gastrointestinal complications. In this study, the most common gastrointestinal complications were prevalence: oral ulcers, vomiting, diarrhea and ediparity. Diarrhea was significantly higher in girls. The mean age of patients with fistula and perianal ulcers and odynophagia was significantly lower than that of non-infected patients. Fatigue is one of the most common and most uncomfortable side effects of cancer and its related therapies (38).

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The result of a study, show that cancer patients undergoing chemotherapy experience varying degrees of fatigue during a chemotherapy cycle. The results also showed that (87.5%) of the units experienced moderate fatigue during their chemotherapy cycle. The pattern of changes in fatigue intensity during one cycle showed that fatigue severity was fluctuating in a chemotherapy cycle, and the pattern of these changes was significant (39).

The results of a study show that there was no significant difference between the prevalence of intestinal parasites and the two variables of age and sex. This study showed that the rate of intestinal parasites infection in patients with cancer in the group was 1-4 times 34.6% and in the treatment group more than 5 times 33.6% which was not statistically significant (40). The results of a study showed that the overall prevalence of undesirable sleep quality was 51.4%. Statistical analysis showed that the most important factors related to poor sleep quality, previous history of previous surgery, hospitalized patients, and exhaustion of pain and pain severity (41). A study on the prevalence of oral mucositis due to chemotherapy and its risk factors in children with malignancy was carried. In this study most of the ALL patients who participated in the treatment had oral mucositis in the first trimester of treatment. But these results were not seen in the second quarter. The study of plaque index and intensity of mucositis in patients showed that there was a significant relationship between these two variables in the first trimester and the two treatments. The use of cytarabine and cyclophamide was significantly correlated with changes in the severity of mucositis. Nausea and vomiting are one of the most common complications of chemotherapy (42). in a study (43) aimed at investigating the effect of freeze massage as a cheap, easy, non-invasive and safe method on P6 or Niigan points on nausea and vomiting of cancer patients Chemotherapy was done. In this study, ice massage significantly decreased nausea and vomiting, as well as reduced severity of nausea and vomiting severity. In comparison with the control group, the mean number of nausea in the treatment group was significantly reduced. In some studies, women showed a higher chance of getting complications from grade 3 and grade 4 chemotherapy in colorectal cancer compared to men (44).

Studies also highlighted the differences in the incidence of race-related complications, as well

as the low-grade class 3 and grade 4 American races compared to the Caucasian race (45).

The results of a study showed that there is the highest difference between mean and SD of delayed visual memory before and after treatment, immediate hearing impairment before and after treatment, and delayed auditory memory before and after treatment. Also this study showed a significant difference between mean scores of visual and auditory memory before and after chemotherapy (46).

## DISCUSSION AND CONCLUSION

Unlimited proliferation potential, reduced apoptosis, increased angiogenesis, invasive tissue and metastasis are factors of cancer progression.

Cancer treatment may be one of a variety of surgeries, chemotherapy, hormone therapy, radiation therapy and biological therapy (immunotherapy) or set of several methods. In all these ways, cancer cells are destroyed. Of course, along with the destruction of cancer cells, a number of healthy cells are also destroyed and this event is the cause of the side effects of cancer treatment (3, 4).

Chemotherapy in cancer patients has several complications, including gastrointestinal complications, changes in sleep quality, and so on. This systematic review was done to determine gastrointestinal complications of chemotherapy and some other its complications.

According to some studies such as the study (36), it is suggested that treatment team members, especially nurses, are looking for fatigue in cancer patients undergoing chemotherapy, and may have special care to relieve or relieve problems. Training courses for staff in the field of fatigue and care are also necessary.

According to some studies (37) about the prevalence of intestinal parasites in patients with cancer under chemotherapy, it's better that: first, a test for fecal intestinal parasites before chemotherapy. Secondly, if the patient is at risk, this stool test should be repeated several times (5 to 7 times), otherwise the stool test is sufficient once. Third, a chemotherapy test for intestinal parasites during chemotherapy should be repeated. And, fourthly, using specific methods to identify more and more parasitic infections in suspected cases and sensitive patients.

According to the results of some studies (38) that the overall prevalence of poor sleep quality

was high, the design and implementation of nursing interventions, focusing on accurate evaluation and management of pain and fatigue, is recommended to improve the quality of sleep in these individuals.

According to some studies (39) on the prevalence of oral chemo-induced mucositis, it can usually be said that severe oral mucositis is treated at day 14. Risk factors The age and plaque index in the first and second trimester, as well as cyclophosphamide and cytarabine regimens, play a role in the severity of oral mucositis in patients. Hence, the adoption of a mucosal diet and oral hygiene regimen play an important role in reducing the severity of mucositis.

According to study (42), icy massage at the Niigan point is effective in reducing the frequency and intensity of nausea and vomiting of cancer patients under chemotherapy. However, the effect of induction and placebo and the patient's view of nausea and the role of the therapist's interaction with the patient is also somewhat effective. In the study (43), it has been proven that mucosal mucositis is very effective in the treatment of mucositis, which is associated with chemotherapy complications. It is recommended that it be used as an appropriate medication to eliminate mucosal symptoms and reduce oral ulcers. According to a study (44), which showed a defect in chemotherapy screening for patients with breast cancer? Psychological interventions are suggested to improve these problems along with medical treatment.

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