

Evaluation of Chemotherapy Complications in Patients with Cancer: A systematic Review

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ABSTRACT

Introduction: The incidence of cancer deaths is increasing, with at least about 8 million deaths per year due to cancer, according to World Health Organization statistics, the incidence of cancer deaths from 45% per year 2007 will reach 65% in 2030. Today, chemotherapy is one of the most widely used therapies which is used as a basis for the treatment of various malignant disorders. The purpose of this systematic review is to determine the complications of chemotherapy in cancer patients.

Materials and Methods: The study was a systematic review using the articles published in the last 25 years about the complications of chemotherapy in cancer patients. This integrated review study was conducted based on the Broome method. The study was done by searching the search engines and scientific databases of articles include SID, Magiran, research gate, Science direct, Google Scholar, PubMed, in Persian and English.

Results: In the studies reviewed, some of the complications of chemotherapy were evaluated in patients with cancer. Gastrointestinal lesions such as odynophagia, diarrhea, vomiting, mucositis, and oral pests. Also, fatigue, increased intestinal parasites were some of the complications of chemotherapy.

Conclusion: It is suggested that members of the treatment team, especially the nurses, get familiar with the complications of chemotherapy in cancer patients under chemistry. And they take care of and follow up on the treatment for these patients. also they have to do certain precautions to remedy or relieve the problem.

Keywords: Cancer, Chemotherapy complications, Oral mucositis, Fatigue severity

INTRODUCTION

Cancer is now a major public health problem in the world. The incidence of cancer deaths is increasing, with at least about 8 million deaths per year due to cancer, according to World Health Organization statistics, the incidence of cancer deaths from 45% per year 2007 will reach 65% in 2030 (1). Unlimited proliferation potential, reduced apoptosis, increased angiogenesis, invasive tissue and metastasis are factors of cancer progression (2). The increasing importance of examining changes in the expression of genes in the development of various types of cancers and the emergence of new biotechnology methods has led to such molecular studies of particular importance in studies on the etiology of this disease (3). The pattern of occurrence of different types of cancer varies among populations and is related to factors such as occupational, social, cultural, and racial, geographical and nutritional issues. In general, the incidence of some cancers, such

as stomach cancer and its mortality, has declined dramatically in western countries over the past 70 years. But this is increasing in some countries, such as Iran, China, Ireland and Chile (4).

One of the causes of cancer is diabetes. Diabetes is the most common endocrine disorder. (5) This disease is a metabolic disorder characterized by chronic hyperglycemia that affects the individual's members and reduces longevity (6-10). Diabetes complications, while causing high costs on individuals and the community, also increase mortality in people with diabetes. Inappropriate combination (low physical activity and unhealthy foods) has increased uncontrolled diabetes outbreaks in the world (11-13). Patients with diabetes are more likely to develop cancer than the general population (14). Complications of diabetes are very common among patients. (5). In diabetic patients, depression is one of the most common psychiatric disorders (15). One of the most common and debilitating problems of youth and

adolescents is depression, and is so wide spread that among mental disorders it is referred to as a common cold. (16,17). Depression and occupational stress daily may cause some disorders in people's mental, mental and physical health (18). The high status of occupational stress is known as a known psychosocial factor in cardiovascular disease (19). That study can reduce the anxiety and depression of these people (20). Diabetes mellitus is one of the most common endocrine complications in thalassemic patients (21). Thalassemia syndrome is one of the hereditary diseases of the blood, which is generally estimated at an annual incidence of thalassemic patients with one in 100,000 worldwide (22-27).

Diagnosis of cancer is more than an unpleasant and unbelievable experience for any individual, which can disrupt the occupation, socioeconomic status and family life of the patient. Patients suffer severe psychological reactions after diagnosis of cancer, so one of the sensations that they face when diagnosed with cancer is the impending death and death (28,29). Staging is an important part in the diagnosis and treatment of cancer patients, especially breast cancer. Staging helps determine topical and systemic mapping and determines the prognosis of the disease (30,31). Considering the possibility of a high prevalence of chemotherapy complications and some studies, like the study of Ebrahimi (32), which investigates the effect of ginger on the control of chemotherapy-induced nausea and vomiting, shows that these complications are high. Therefore, a systematic study Should examine these complications so that other researchers can easily focus on the treatment of these complications by reading this systematic overview. Therefore, the purpose of this systematic review is to determine the complications of chemotherapy in cancer patients.

MATERIALS AND METHODS

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. To achieve relevant studies, a wide range of keywords including cancer, chemotherapy complications, oral mucositis, Fatigue severity 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 20 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 25 years about the complications of chemotherapy in cancer patients. It was conducted in English and Persian by searching articles in search engines, sites and authoritative scientific databases SID, Magiran Google Scholar, Embase, Research gate, Science direct, Pubmed, Springer. In the first stage, 39 articles were found. of these, 10 related articles that have been published in the last 25 years have been reviewed.

RESULTS

A cohort study as prescribed by chemotherapy side effects in colorectal cancer incidence was conducted by Sadeghi and colleagues. In this study, there were no significant statistical effects on any factors affecting the incidence and severity of complications of any of the factors including gender, age, ethnicity, perforation status, stage of disease, tumor location and chemotherapy regimen. In this study, with a selection of 109 patients with colon and rectum cancer who were candidates for chemo therapy with FU-5 or capacitabine-based bases, they were followed up and treated continuously during the study, a group of complications of treatment were prospectively tracked and recorded. In this study, after 468 chemotherapy and complication registrations during the first 6 periods, and 55 cases of grade 3 and 4 complications, in total 11.6% of the patients had significant complications. 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) (33). The results of a study carried out by Eshghyar et al. 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%) (34). In the study, which was done by Partoi et al. (35), there was a

relationship between age and drug use with gastrointestinal complications. In this study, the most common gastrointestinal complications were prevalence: oral ulcers (56%), vomiting (46.7 %), diarrhea (26.7%) and ediparity (25.3%). Oral Pain, Diarrhea, and Vomiting in Phase 1, ALL treatment was more common in the BMF modified treatment program. Diarrhea was significantly higher in girls. And the mean age of patients with abdominal distension was significantly higher than that of non-infected patients. 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. The experience of fatigue by cancer patients can affect their different dimensions of life and cause many problems. The result of study by Farajollahi et al. (36) show that cancer patients undergoing chemotherapy experience varying degrees of fatigue during a chemotherapy cycle. The severity of fatigue is also variable in a chemotherapy cycle that peaked on the fifth day of the cycle. The severity of fatigue was related to the location of the cancer and the number of chemotherapy cycles. 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. The results of a study entitled "Prevalence of intestinal parasites in patients with cancer under chemotherapy " and conducted by Mr. TOGE et al., In this study (34%), were infected with intestinal parasites. 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 (37). The results of a study entitled "Sleep disorders and related factors in patients undergoing chemotherapy", by Jalali et al. (38) Which 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. A study on the prevalence of oral mucositis due to chemotherapy and its risk factors in children with malignancy was carried

out by dehabadi et al. (39) Which showed a significant relationship between the age and severity of mucositis in the first trimester and the second trimester. 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. A study on the effect of ice massage on nausea and vomiting of cancer patients undergoing chemotherapy by Sadeghi et al. (40) 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 (41). Studies have also highlighted the differences in the incidence of race-related complications, and for example, the lower grade of grade 3 and grade 4 American American breeds compared to the Caucasian race (42). The results of a study conducted by Dehghani et al. (43), entitled "Memory Assessment of Patients with Breast Cancer Before and After Chemotherapy" 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. The results of Wilcoxon test showed a significant difference between mean scores of visual and auditory memory before and after chemotherapy.

DISCUSSION AND CONCLUSION

In this systematic review, which reviews the complications of chemotherapy in cancer patients, several studies have been reviewed to be expressed the complications of chemotherapy and there are some guidelines for this study. According to some studies (33), grade 3 and grade 4 complications are low in

chemotherapy patients. This can be mentioned due to the average age of the affected individuals, the follow-up of some complications, the difference in the way of reporting, and the overall improvement of perforation, in addition to the possibility of different pharmacologic agents. The high percentage of this lesion in the age group of adults and the elderly can be attributed to the weakness of the immune system in this group (34). The findings of some studies (35) suggest that chemotherapy-induced cancer patients experience varying degrees of fatigue during a chemotherapy cycle. Therefore, it is suggested that the members of the treatment team, especially the nurses, pay attention to fatigue in cancer patients under chemotherapy and take special care to relieve or relieve the problem. In-service training courses for staff in the field of fatigue and related care are also necessary. According to some studies (36) on the prevalence of intestinal parasites in cancer patients undergoing chemo-therapy, it is a debt that these suggestions are raised: First, test for stool intestinal parasites before chemotherapy. Secondly, if the patient is in the risk group, this stool test should be repeated several times (5 to 7 times), otherwise a stool test is sufficient once. Thirdly, the stool test should be repeated for intestinal parasites during chemotherapy. And, fourthly, using specific methods to identify more and more parasitic infections in suspected cases and susceptible patients should be taken. According to the results of some studies (37) that the overall prevalence of undesirable sleep quality was high, Designing and implementing nursing interventions is recommended with a focus on accurate evaluation and management of pain and fatigue in order to improve the quality of sleep in these patients. According to some studies (38) on the prevalence of oral mucositis caused by chemotherapy, it can generally be said that severe oral mucositis is experienced on the 14th day of treatment. Risk factors for age and plaque index in the first and second trimester, as well as cyclo phosphamide and cytarabine regimens, play a role in the severity of oral mucositis in patients. Therefore, the adoption of a low-risk mucosal and oral hygiene diet has a significant role in reducing the severity of mucositis. According to study (39), ice massage at Niigan point is effective in decreasing the frequency and severity of nausea and vomiting of cancer patients under chemotherapy, but the effect of induction and placebo and patient's view on nausea and the role of therapist-patient interaction are also

somewhat Is effective. In a study (43), it has been proven that Brome mouthwash has been very effective in the treatment of mucositis, which has been associated with chemotherapy complications. It is recommended that used as a suitable drug for relieving mucositis symptoms and reducing oral ulcers. According to a study (42), which revealed a defect in memory of patients with breast cancer due to chemotherapy? Psychological interventions it is suggested to improve these problems along with medical treatment.

As said, diabetes is one of the diseases that can cause cancer (44). Diabetes, in addition to cancer, affects other organs of the body, such as the heart (45,46). Therefore, it is necessary to prevent the development of diabetes, which causes many complications, such as cancer.

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