

A nursing perspective of nutrition in cancer patients undergoing chemotherapy

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ABSTRACT

Purpose: To present of an appropriate diet consists in cancer patients undergoing chemotherapy.

Materials and methods: A search was made in the Pubmed and Scopus databases for reports on nutrition and chemotherapy in cancer patients. There were used the following key words: nutrition, cancer, chemotherapy and the combination of them.

Results: Nutritional problems of patients are caused by the same disease, the antitumor therapy and the patient's response to the diagnosis and treatment. Symptoms such as anorexia, changes in taste, nausea - vomiting, diarrhea, stomatitis and constipation are common side effects of chemotherapy and can lead to inadequate food

intake and consequently, malnutrition. There are many appropriate nursing interventions that alleviate the above symptoms.

Conclusions: Nurse plays an important role in the care of patients who have been feeding problems receiving chemotherapy. Nutritional interventions are individualized and should be started immediately and incorporated into the care plan in order to be successful. In order this to be achieved; all patients should be assessed for nutritional problems and weight loss before starting treatment and after starting regularly.

Key words: Nutrition, chemotherapy, cancer, nausea-vomiting, diarrhea, constipation

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INTRODUCTION

Chemotherapy is the administration of antineoplastic drugs administered either alone or in combination between them, which stop cell division by inhibiting the synthesis of genetic material or by causing irreparable damage to our DNA [1].

Diet occupies an important role in oncology and any impact on nutritional status is directly related to the disease process and the treatments, simultaneously [2]. Nutritional problems of patients are caused by the same disease, the antitumor therapy and the patient's response to the diagnosis and treatment [3]. Because of the fact that chemotherapy is systemic treatment, it affects the entire body and therefore causes more side effects in comparison with surgical therapy and radiotherapy which are local. Systemic chemotherapy is likely to cause toxicity which can affect the nutritional status of patients [4]. Symptoms such as anorexia, changes in taste, nausea-vomiting; diarrhea, stomatitis and constipation are common side effects of chemotherapy and can lead to inadequate food intake and consequently malnutrition which occurs at a frequency of about 40-80 % patients with cancer [3].

Cancer patients experiencing numerous symptoms which affect the therapeutic state. The oncology nurse has a vital role in identifying these symptoms and to assess the likely consequences that are threatening their lives [5].

The purpose of this paper is the presentation of an appropriate diet in cancer patients undergoing chemotherapy.

MATERIALS AND METHODS

A literature review was conducting using the electronic databases PubMed and Google scholar. There were used the following key words: "nutrition", "nursing", "chemotherapy", "cancer" and the combination of them. Exclusion criteria of articles were the language, except English and Greek.

Lack of appetite

Defined as the reduction of appetite accompanied with reduced food intake. It is multifactorial etiology, whereas that associated with organic, psychological and social factors. The type of treatment, the disease itself and psychosocial factors play an important role in the onset of loss of appetite [6].

The treatment includes an initial evaluation of anorexia which can be done by scoring the loss of appetite on a scale from 0-10, where 0 corresponds to no and 10 the maximum and the evaluation of the dietary history of the family and analysis of protein and the amount of calories [5].

For the treatment of anorexia is important counseling of patients and their families to understand the problem and to set realistic goals to meet the nutritional needs [7]. Interventions for anorexia include prevention of weight loss. The following are some helpful tips to improve appetite:

- Recruitment frequent meals and snack that is easy to prepare
- Administration liquid supplements that improve the total energy intake [8]
- Get liquid to impart energy to the body (eg liquids, soups, milk and smoothies fruit)
- Taking food in a comfortable and tranquil environment
- Regular exercise to improve appetite
- Get short, frequent and high-calorie meals
- Preparing and storing small amounts of your favorite foods
- Drinking third of daily protein and calorie breakfast
- The addition of substances that improve the taste of food
- Thorough oral hygiene for the relief of symptoms which contribute to the onset of anorexia [6,7].

Also, the National Cancer of Institute suggests eating foods such as cheese, pudding, milkshake, yogurt, ice cream, and milk powder.

Nausea - Vomiting

Nausea and vomiting are one of the most unpleasant side effects experienced by cancer patients undergoing chemotherapy [9,10]. Approximately, 70-80 % of patients are at risk of experiencing the symptom without adequate antiemetic treatment [10]. As nausea is defined as an unpleasant sensation perceived at the back of the throat and epigastrium, which may come or may not come in vomiting [6], and vomiting as the violent expulsion of the contents of the stomach, duodenum and jejunum through the oral cavity [11]. The nausea-vomiting divided into acute nausea-vomiting, delayed nausea-vomiting, reflective nausea-vomiting, persistent vomiting [12]. Before carrying out interventions to treat nausea-vomiting should initially make an assessment of the symptom using a proportional scale or calendar and a combination thereof [7]. Also helpful is considered the assessment of risk factors that could affect the occurrence of symptom: previous experience nausea-vomiting, gender, history sick, history of nausea-vomiting in pregnancy and a history of alcoholism [5].

The advisory that concerns the adjustment of eating habits in the new data can helps, as well as auxiliary is evaluating the timing, the volume and the content of meals [7]. Appropriate dietary advice for dealing with nausea vomiting include: taking small frequent meals, reducing food odors and other accompanying foods with strong odors and taking

antiemetic drugs before food intake [13]. Rinsing the mouth before and after eating and avoid any activity for at least an hour after feeding [11] seems to alleviate the symptom.

In addition to treating nausea vomiting use appropriate antiemetic drugs and non-pharmacological interventions such as acupuncture, guided fantasy, music, progressive muscle relaxation and psycho-training support and information [13].

Stomatitis (Mucositis)

Stomatitis is an acute inflammation of the oral and oropharyngeal mucosa including the lips, tongue, gums and cheeks mucosa [7]. The stomatitis caused by chemotherapy is one of the most debilitating and problematic side effects. It is known that many chemotherapeutic drugs such as methotrexate, topoisomerase inhibitors II (irinotecan), the kytaravini, alkylating agents at high doses (e.g. busulfan, melphalan, cyclophosphamide) doxorubicin, daunorubicin cause stomatitis and patients with hematological malignancies are more prone to the occurrence of oral complications [7]. The initial assessment of the oral cavity at the start of chemotherapy is necessary for the effective treatment of stomatitis [14].

The countermeasures include mouth-washes four times daily with saline or 0.9% sodium bicarbonate (baking soda) or a mixture of saline and sodium bicarbonate [15]. It is proposed to take soft foods that are easy to chew and swallow (banana, pear, peach, watermelon, apricot juice, mashed potatoes), avoiding foods that are irritating to the oral mucosa (e.g. orange, grapefruit, savory, spicy foods) and avoid tobacco and alcohol [15]. It is suggested the intake of food cold or at room temperature [16].

Patients should also receive education for dental hygiene before starting, and during chemotherapy. In certain medications, such as melphalan has shown that the use of cryotherapy is effective in preventing stomatitis [17], while is also effective combined with other drugs such as Vepesid, platinum, mitomycin (Mitomycin-C) and vinblastine (Velbe) [18].

Diarrhea

Diarrhea is defined as an increase of the volume and liquefied faeces, which leads to three or four bowel movements per day and may be accompanied by abdominal cramps or gases [7,19].

There have been reported therapies that comprising fluorouracil and irinotecan cause diarrhea in 80% of patients who take it [20]. It is known that drugs: actinomycin D, doxorubicin, the cis-platin, hydroxyurea and nitrosoureas cause diarrhea [7].

To carry out the treatment of diarrhea we should initially make an assessment of the patient to become known numbers of stools, nutritional status

and associated symptoms. In patients there should be modifications in diet, while every diet should be individualized and take into account the religious, cultural identity of the patient and their personal preferences.

Foods that are rich in fat, spicy containing dairy, caffeine or alcohol should be avoided. Patients with mild diarrhea (fewer than four stools) recommended eating bananas, rice, apple juice and toast (bananas, rice, applesauce, toast, BRAT) in order to decrease the number of stools. If the BRAT diet is not well tolerated then it is administered liquid diet [20]. If the patient recovers, it is recommended to take solid foods again small, frequent meals (about six a day) [21]. It is necessary to direct patients to avoid dehydration and disturbance of fluid balance by hiring three to four liters of fluid a day [20] and the diligent perianal hygiene [7].

Constipation

It has been described as infrequent, excretion too hard and dry stool due to incomplete filling or emptying the rectum [7]. The incidence varies, ranging from 50-95 % in hospitalized patients [21]. Resulting from inadequate fluid intake, lack of fiber in the diet, lack of physical activity and chemotherapy [6,22]. Some chemotherapeutic drugs can cause changes in the functioning of the autonomic nervous system and such alkaloids are vinca, oxaliplatin and taxanes [6].

Particular emphasis should be given to prevent constipation, which is achieved by appropriate dietary tips which include:

- Eating foods high in fiber on a daily basis. The recommended intake of food is 25-35 gram/day. The fibers should intend gradually to the diet and concomitant fluid intake
- Get 8-10 glasses of fluid a day (water, prune juice, warm juices, teas, lemonades)
- Regular physical activity [6].

If precautions are not affective and constipation remains a problem then it is suggested a treat of constipation which includes three parts: the continuation of appropriate dietary therapy, physical activity, taking appropriate medication (laxatives, increase the volume of stool softeners, the stimulatory intestinal motility and osmotically acting while in difficult cases is suggested to use an enema using sodium phosphate and sodium citrate [23]. Also, other non-pharmacological measures used to relieve constipation is aromatherapy [24]. In addition, proposed upon a constipation problem occurs, the medical staff to be notified and administer quickly and appropriate treatment in order to prevent more serious complications [7].

CONCLUSIONS

The nurse plays an important role in the care of patients who have feeding problems receiving chemotherapy. The interventions made should take into account the patient's prognosis, treatment, operation of the gastrointestinal system, the ability to eat and personal preferences. Nutritional interventions are individualized and should be started immediately and incorporated into the care plan in order to be successful. In order this to be achieved; all patients should be assessed for nutritional problems and weight loss before starting treatment and after starting on a regular basis. Therefore more research is needed on an international level in order to assess the nutritional problems faced by patients Greek patients with cancer undergoing chemotherapy, and then to design appropriate interventions to alleviate them.

Conflicts of interest

The authors declared no conflicts of interest.

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