Effect of nutrition education on the knowledge and attitude of oncologists towards nutrition therapy for cancer patients

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Abstract

Oncologists' knowledge and attitude about malnutrition and its management vary greatly, and many undernourished cancer patients may not receive enough nutritional support. The aim of this study was to assess and improve the knowledge and attitude of oncologist toward nutrition care of cancer patients. Twenty medical oncologists in Kasr El Aini Center for Clinical Oncology and Nuclear Medicine were invited to complete a self-answered questionnaire before and after a nutrition education session delivered to them. The questionnaire included information regarding the participants demographic and professional information, clinical nutrition education status, knowledge and attitude towards nutrition therapy, and barriers to using it. Mean ±SD of age of the oncologist was 30.5±4.6 years. Males were less than third of the oncologists (30.0%). more than half of the studied oncologists (55.0%) were hospital residents and 20% had received nutritional education. None of them was following any nutritional guidelines. The mean score for basic nutritional knowledge significantly increased from 54.5±23.8 to 97.7±4.0 post intervention with mean change 43.2±23.2, p value <0.001. The Mean score for specific nutritional knowledge was significantly increased from baseline 60.8±18.9 to 92.6±6.0 after intervention with mean change 31.8±15.3, p-value <0.001. The Mean score for attitude towards cancer nutrition was significantly increased from baseline 61.5±15.4 to 79.2±8.3 after intervention with a change of 17.7±11.5, p value <0.001. The top most barriers identified by oncologists were: No clear guidelines and Lack of knowledge; 85.0% and 55.0% respectively. The basic and specific nutritional knowledge score and the attitude score of the studied oncologists were significantly increased after educational session.

Keywords: Nutrition therapy, cancer patients, malnutrition, oncologist.

1. Introduction

Cancer patients commonly suffer from malnutrition, which causes involuntary weight loss because of a lack of food intake or uptake. This condition significantly affects the course of cancer treatment and the outcomes: it decreases the effectiveness of the treatment, raises the risk of side effects, worsens the quality of life of the patients, and eventually risks their survival [1]. Cancer patients frequently experience weight loss and malnutrition as a result of complications that arise over the course of the disease. Despite the fact that loss of fat mass accounts for the majority of weight reduction, the loss of muscle mass increases the risk of morbidity [2]. Malnutrition has several causes, but the two main ones are anorexia and cancer cachexia. Malnutrition is frequently disregarded, screening methods are not always standardized, and there is no satisfactory consensus on malnutrition further assessment criteria despite the fact that the importance of nutrition in oncology patients is well documented [3]. The goals of nutrition therapy in cancer are to enhance dietary intake, lessen metabolic abnormalities, preserve skeletal muscle mass and physical function, lower the chance of skipping or reducing prescribed anticancer therapies, and enhance overall quality of life [4]. Medical oncologists should be knowledgeable concerning possible interventions. Most of all, they should consider addressing nutritional (as well as other supportive care) issues in a multidisciplinary manner, both to diagnose possible remediable causes for malnutrition as well as decide interventions [5]. Screening for malnutrition is simple and should be mandatory during every visit or new admission of any patient with cancer, so as to identify as early as possible malnutrition (the earlier it is detected, the more treatment strategies will be likely to be beneficial). Several nutrition-screening tools are considered

reliable for patients with cancer and allow a quick and easy nutrition screening, thus freeing up resources that may be reallocated in higher priority nutrition activities [6]. International recommendations for nutritional support in cancer patients are available, however attitudes regarding this matter vary greatly among doctors, and many malnourished patients do not receive sufficient nutritional support [7]. Guidelines need to be locally implemented to be efficient. Nutritional multidisciplinary working groups should be created in every cancer centre, who should 'translate' current guidelines into practice. Clear tasks and responsibilities would have to be defined for all participants [8]. The present study aimed to assess the effectiveness of applying a nutritional intervention targeting medical oncologists' knowledge and attitude towards nutrition through a session about the nutritional management guidelines for cancer patients. The study also aimed to determine the oncologists' level of clinical nutrition education and their perceptions of obstacles to the usual application of nutrition therapy to their patients.

2. Methods
2.1 Study area, study design and study population
This study was conducted in Kasr El Aini Center for Clinical Oncology and Nuclear Medicine. The **sample** were random with a total of 20 participants who were residents, specialists or clinical oncology consultants. They were invited to complete a self-answered questionnaire before and after a session introduced to them titled: Nutritional care for cancer, prevention and management.

2.2 Study tools
The following tools were used pre and post intervention:

2.2.1 Self-administered supervised questionnaire for health care providers
A predesigned structured closed ended questionnaire was fulfilled to gather information on Basic demographic and educational backgrounds of the health care providers, their knowledge and attitude towards nutrition in cancer and barriers facing them in introducing nutrition care for their patients.

2.2.1.1 Scoring of knowledge
Two knowledge scores have been calculated for each doctor, one for the basic nutritional knowledge and the other one for cancer specific nutrition knowledge. Knowledge % score for the doctor was calculated as follows; the correct answer was coded as one (1) while the wrong and don't know answers coded as zero (0), then the summation of the score for each study subjects was divided by the total required (maximum) score (11 points for basic nutrition knowledge and 19 points for cancer specific nutrition knowledge) then multiplied by 100 as shown below:

$$\text{Knowledge \% score} = \frac{\text{Collected score by each doctor}}{\text{Total required score}} \times 100$$

Attitude questions are asked to rate answer on a three-point likert scale (Agree, neutral and disagree), this included 13 questions.

2.2.1.2 Scoring of attitude
Attitude score was calculated for each doctor. Attitude % score for the patients was calculated as follows; the positive attitude was coded as one (1) while the negative and neutral answer coded as zero (0), then the summation of the score for each study subject was divided by the total required (maximum) score (13 points) then multiplied by 100 as shown below:

$$\text{Attitude \% score} = \frac{\text{Collected score by each doctor}}{\text{Total required score}} \times 100$$

2.2.2 A presentation was delivered by the researcher and a printed handout was distributed
A one-hour session aims to raise the awareness of health care providers about the role of nutrition in both cancer prevention and management with a medical nutrition guide for cancer patients followed by an open discussion and answering the questions of health care providers. A summary of the information in the presentation was given as Printed handout.

2.3 Ethical Considerations
The study protocol and the formats used in data collection was revised and approved by ethical committee of the National Research Centre, Egypt with approval No. 13155. Participants who accepted to participate in the study signed an informed consent form before participation in the trial after being told of the study's procedures and goals.

2.4 Statistical analysis
Statistical Package for Social Sciences (SPSS) software, version 28.0, IBM Corp., Chicago, USA, 2021, was used to code, tabulate, and statistically analyze the obtained data. Scores of general knowledge, specific knowledge and attitude were calculated for each oncologist by calculating the percentage of the appropriate answers of different items relative to total number of items. Using the Shapiro-Wilk test, quantitative data were checked for normality, then were represented as mean and SD (standard deviation), as well as the lowest and maximum of the range, and were then compared using paired t-tests (paired variables). Qualitative data described as number and percentage, while compared using McNemar test (paired binary variables) and Marginal Homogeneity test (paired ordinal variables). The level of significance was taken at p-value <0.050 was significant, otherwise was non-significant.

3. Results
In the current study, the mean ±SD of age of the studied oncologists was 30.5±4.6 years. Males were less than of third (30.0%) and residents were more than half (55.0%). Less than one quarter of the studied oncologists reported that they had attended Nutritional education (20.0%). None of them was following any nutritional guidelines (Table 1). The Mean score for basic and specific nutritional knowledge was significantly increased from baseline (54.5±23.8) to (97.7±4.0) post intervention with mean change 43.2±23.2, p value <0.001 for basic knowledge and from baseline (60.8±18.9) to (92.6±6.0) after intervention with mean change (31.8±15.3), p-value <0.001 for specific nutritional knowledge (Table 2). The Mean score for attitude towards cancer nutrition was statistically

significantly increased from baseline (61.5±15.4) to (79.2±8.3) after intervention with change (17.7±11.5), p value <0.001 (Table 3). The top most barriers identified by oncologist were: No clear guidelines and Lack of knowledge; 85.0% and 55.0% respectively (Figure 1).

4. Discussion

The present study aimed to assess the effectiveness of applying a nutritional intervention targeting medical oncologists' knowledge, and attitude towards nutrition through a session about the nutritional management guidelines for cancer patients. The study also sought to determine the oncologists' level of clinical nutrition education and their perceptions of obstacles to the usual application of nutrition therapy to their patients. This go along with many studies highlighting the importance of nutrition awareness and practice of health care providers regarding cancer patients [9,10].

4.1 Clinical nutrition training status of the studied oncologists

In the current study, only 20.0% of the oncologists who were interviewed acknowledged received nutritional instruction. Less than half of respondents in a Turkish study of medical oncologists (43.1%) claimed to had clinical nutrition training [10]. In the present study, all basic nutritional knowledge items improved after orientation session except knowledge about food item which contains the most carbohydrates, protein, and fat, fibre rich food, the main source of omega 3 fatty acid, and the classification of body mass index, which were already well known before session. There was a significant improvement of the basic knowledge towards nutrition, which increased from 43.2% before health education reaching around 98% after intervention, P < 0.001. The majority of research conducted to far on the nutritional knowledge of oncologists have concentrated on the specialized nutritional knowledge and paid less attention to the basic nutritional knowledge [11, 10].

4.2 Cancer-specific nutrition knowledge among studied oncologists pre and post-intervention

Numerous studies have shown that medical oncologists and other healthcare providers who treat cancer patients appear to overlook dietary factors when conducting screening, information, or intervention [11]. Except for the knowledge that weight loss is the most common-during the course of cancer, knowledge about physical activity recommendations, and knowledge that nutritional status affects the course of cancer, which were already well known before session in about 70% to 100% of them, cancer specific nutritional knowledge items in the current study improved after orientation session. The mean specific nutritional knowledge score was statistically significantly increased from 60.8±18.9 at baseline to 92.6±6.0 after orientation session with mean change (31.8±15.3), p-value <0.001. Knowing how nutrition affects way cancer patients' diseases progress was high before educational session (95.0%), then became 100.0% after intervention. While a research from Italy found that roughly 60% of oncologists believed that a patient's dietary health significantly influences whether or not antineoplastic medicines are

feasible or tolerated in their case [12], and this also confirmed by Kirbiyik and Ozkan, 2018 [10]. Knowledge about the importance of nutritional screening of all patients was high before educational session (75.0%), then became 100.0% after intervention. The result before intervention is similar to that of Muscaritoli et al., (2021) which revealed that at the initial oncological visit, 64% of the participating oncologists were aware of the necessity of a nutritional examination [12]. Similarly, Kirbiyik and Ozkan, (2018) reported that 90.8% of the studied medical oncologists knew that all examined cancer patients should undergo nutritional screening [10].

4.3 Attitude of medical oncologist towards nutrition

The attitude towards cancer nutrition status improved after orientation session. The participated oncologists had already positive attitude towards the importance of assessing the nutritional status of patients, the importance to evaluate the patients' nutritional state, the importance of weighing every patient upon admission, the importance of the role of nutrition in preventing diseases, the importance role of nutrition in improving patient's medical condition, the importance of nutritional therapy before major surgery, and the importance of nutritional therapy during chemotherapy and radiotherapy. The mean attitude score towards cancer nutrition was statistically significantly increased from baseline (61.5±15.4) to (79.2±8.3) after orientation session with change (17.7±11.5), p value <0.001. In this study only 15.0% of studied oncologists agreed before the intervention that they were knowledgeable enough to conduct a patient's admission nutrition screening, and this increased to 50% after intervention. In the Turkish study by Kirbiyik and Ozkan (2018), 90.8% of respondents believed that nutritional testing should be done on all cancer patients, 94.5% believed that nutritional status affected prognosis, and 92.7% of the medical oncologists said they could tell the difference between a patient who was malnourished and someone who wasn't [10].

4.4 Barriers to routine use of nutrition therapy

The most frequent barriers against nutrition practice as perceived by oncologists in the current study were that there are no clear guidelines and lack of knowledge; 85.0% and 55.0% respectively. In a study by Martin et al., 2016, nutrition care implementation in patients with head and neck and esophageal cancer was attempted to be improved by identifying obstacles and potential solutions [13]. Lack of evidence for the benefit of nutrition interventions, a lack of standardized protocols for nutrition care, attitudinal differences, insufficient knowledge, and inadequate training of health care providers were the main barriers. According to the findings of a survey done by the Italian Society of Artificial Nutrition and Metabolism (SINPE) and the Italian Association of Medical Oncology (AIOM), poor nutrition management for cancer patients is still a serious issue [11]. Another study by Kirbiyik and Ozkan, 2018 stated that, lack of knowledge (71.6%) and a lack of recommendations that provided clear information (49.5%) were the main barriers to routine nutrition therapy in the management of cancer patients [10].

Table 1: Demographic characteristics of the studied oncologists (n=20)

| Variables			Mean±SD	Range
Age (years)			30.5±4.6	26.0–40.0
			No. (n=20)	%
Gender		Males	6	30.0
		Females	14	70.0
Designation		Resident	11	55.0
		Assistant lecturer	5	25.0
		Consultant	4	20.0
Attended previous Nutritional education			4	20.0

Table 2: Mean score for basic nutritional knowledge; pre and post-intervention among the studied oncologists(n=20)

Time	Mean±SD	Range	^p-Value
Basic nutritional knowledge pre-intervention	54.5±23.8	18.2–100.0	<0.001*
Basic nutritional knowledge post-intervention	97.7±4.0	90.9–100.0	
Change (post– pre-intervention)	43.2±23.2	0.0–81.8	
Specific nutritional knowledge pre-intervention	60.8±18.9	42.1–100.0	<0.001*
Specific nutritional knowledge post-intervention	92.6±6.0	78.9–100.0	
Change (post– pre-intervention)	31.8±15.3	0.0–47.4	

Table 3: Mean score for attitude towards cancer nutrition; pre and post-intervention among the studied oncologists (n=20)

Time	Mean±SD	Range	^p-Value
Pre-intervention	61.5±15.4	46.2–100.0	
Post-intervention	79.2±8.3	69.2–100.0	<0.001*
Change (post – pre-intervention)	17.7±11.5	0.0–30.8	

^Paired t-test
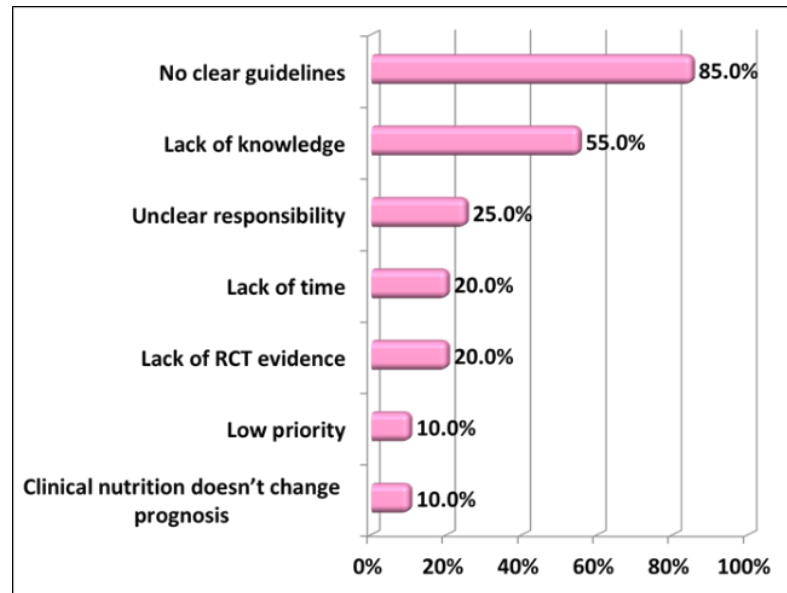
Figures 1: Barriers against patient nutrition education practice as perceived by the studied oncologists

Effective management of cancer patients depends on early nutritional assessment and appropriate intervention which can prevent malnutrition and maintain adequate nutritional status if they are carried out on time [14]. Medical oncologists evaluate each of these concerns and direct the patients to the proper specialist based on the issue found. As a result, medical oncologists should be more knowledgeable about nutrition as a supportive care issue and should receive better training in this area [8]. Nutrition specialists should ideally handle dietary issues for cancer patients, however they are very few and often unavailable in oncology departments. Oncologists are confronted to manage nutritional aspects of cancer patients due to lack of multidisciplinary team; consequently, this teams remain as a standard to be achieved.

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