NUTRITION STATUS OF CANCER PATIENTS ATTENDING ONCOLOGY UNIT AT BIRAT MEDICAL COLLEGE

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ABSTRACT

Introduction

Malnutrition is a major problem in cancer patients which results in high morbidity and mortality. There are lack of comprehensive centers providing nutritional support to cancer patients in eastern region of Nepal.

Objective

The objective of this study was to analyze the malnutrition status of cancer patients at Birat Medical College. It aimed to calculate the prevalence of malnutrition in cancer patients.

Methodology

This descriptive cross sectional observational study of six months duration was conducted from 15th January 2021 to 15th July 2021 in the department of Oncology at Birat Medical College Teaching Hospital. All the histologically proven cancer patients during the study period were taken as study population whose body mass index were calculated. The relevant data were maintained in excel sheet and analysis was done with the help of statistical software SPSS version 22.

Result

A total of 70 cases attended oncology unit during the study duration at Birat Medical College. The mean age of the cases were60 years (range 21-85) with the proportion of female patients almost equal (53%) to that of males. There was total 28 (40%) malnutrition cases out of which 22% were over weight, 17% were underweight and only 1% obese. During the study period total 50% of the malnutrition cases were alive and 50% cases expired due to disease progression.

Conclusion

Malnutrition is a major concern worldwide and even in cancer patients of Nepal. There is a need of comprehensive cancer center providing nutritional support to cancer patients in eastern region of Nepal.

KEYWORDS

Body mass index; Cancer; Malnutrition;

INTRODUCTION

Malnutrition is a universal issue affecting every country of the world. According to the World Health Organisation, malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. The term "malnutrition" not only covers the group with 'undernutrition', including, stunting, wasting, underweight and micronutrient deficiencies or insufficiencies but also refers to the over weight, obese and diet related non communicable diseases.[1] Worldwide data suggests that around 1.9 billion adults are overweight while 462 million are underweight.[1]

With the dramatically increasing incidence of cancer in the world, the eastern region of Nepal is also not untouched. Malnutrition is very common in cancer patients.[2,3] The cause behind malnutrition in cancer patients are anorexia, weight loss, vomiting, loose motion, decrease intake etc.[4] Malnutrition can be defined with the help of body mass index (BMI). Malnutrition in cancer patients is associated with poor prognosis and poor quality of life.[5,6] There are very few comprehensive cancer centers providing treatment to cancer patients including nutritional support in eastern region of Nepal. Hence this study aimed to quantify the pattern of malnutrition in cancer patients and address the need of nutrition department in a comprehensive center along with the role of dietitian for nutritional support of cancer patients.

The facility of Oncology services including chemotherapy, radiotherapy and surgical oncology is limited in the eastern region of Nepal. Amongst the few centers providing cancer services, Birat Medical College Teaching Hospital is well equipped in providing inpatient oncology services (IPD) as well as outpatient department (OPD) with trained nursing staffs who provide nursing care during therapy. Multi disciplinary team including oncologists, nutritionists/ dieticians work hand in hand to prepare customized diet chart according to the needs and requirements of the patients after the diet and nutrition team initially assess the body mass index of the patients and calculate the calorie requirement of the patients along with the protein requirement per day. Sometimes dietitian tailored neutropenic diet for post chemotherapy neutropenic patients, post operative or post radiotherapy patients to prevent infection and thereafter sepsis is formulated.

Certain cancer specific diet and nutrition plan like for digestive tract cancers and other common type of cancers are required. Nutritional support helps patient to cope with the post-surgical stress, chemotherapy as well as radiotherapy along with their side-effects respectively.

METHODOLOGY

This descriptive cross sectional observational study of six months duration was conducted from 15thJanuary 2021 to 15th July 2021 in the department of Oncology, Tankisinuwari, Nepal. Ethical clearance was obtained from the Institutional Review Committee (IRC) of Birat Medical College Teaching Hospital for conducting the study.

Permissive sampling method was used for sample collection of the study. All the consecutive patients attending oncology unit with histologically proven cancer during the study period were taken as study population in inclusion criteria. Pediatric and non- malignant hematological cases were excluded from the study.

Proforma comprising patient details including age, sex, associated comorbidities, types of cancer, treatment received, clinical status etc were maintained in excel sheet and the collected data was analyzed with the help of Statistical Package for Social Sciences (SPSS) version 22.Themain objective of the study was to calculate the demographic characteristics, types of cancers prevalent, types of treatment received and clinical status of the patients.

Nutritional status of the patient was assessed on the basis of body mass index(BMI) calculated as weight in kg/(height in meter)^2 as per center for disease control and prevention (CDC) calculato.[7]

BMI of 18.5-25 was taken as normal. Malnutrition was clinically defined as undernutrition, when BMI was less than 18.5, while overweight when BMI was more than 25 and obese when BMI was more than 30.

After obtaining the nutritional status of patients, the clinical status of the patients as per the disease was assessed along with the morbidity and mortality.

The study was supported by a dedicated team, comprised of oncology team along with patients and family attendant involvement. Data were collected by single real time meeting. Real time meeting was done during clinical examination of patients in the in-patient department for about 15-20 minutes and the data was collected in the excel sheet. Written informed consent was obtained from the patients for the treatment as well as for research purpose.

RESULTS

A total of 70 cases attended oncology unit during the study duration at Birat Medical College. The mean age of the study population was 60 years with the proportion of female patients almost equal 53%(37) to that of males (Table 1). Ninety eight percent of the subjects were married and almost thirty percent cases were in a habit of tobacco/ smoking. Almost 17% (12) and 32%(23) of the patients had comorbidities like diabetic and hypertension respectively. Majority of the patients were Hindus 84% (59) and 93%(65) were non-vegetarian. The patients were mainly inhabitants of Morang and Sunsari districts, which when combined covered almost 83% (58) of the total cases.

Majority of the reported cases were that of solid cancers 73% (51) and hematological 27% (19) cancers (Table 2). Almost 89% (62) cancers were diagnosed as advanced stage disease in contrast to 11% early-stage cancers. Almost 71%(50) cases received chemotherapy for the treatment of cancer while 17% (11) received only supportive treatment. Total of 21 cases expired during the study, out of which 14 cases were malnourished.

Total 28 cases attending oncology unit during the study duration had malnutrition out of 70 cancer cases with the prevalence rate of about 40%. Out of 28 (40%) malnutrition cases, 22%(15) were overweight, 17% (12) were underweight and only 1%(1) obese (Fig 1).

Table 1 : Demographic Characteristics of Cancer Patients (N=70)

Characteristics	Number (N)	Percentage(%)
Sex:		
Male	33	47
Female	37	53
Mean age (Range)	60 (21-85)	
Marital status:		
Married	69	98
Unmarried	1	2
Religion:		
Hindu	59	84
Muslim	2	3
Christian	9	13
Diet:		
Non Vegetarian	65	93
Vegetarian	5	7
Residence:		
Morang District	33	47
Sunsari District	25	36
Other Districts	12	17
Comorbidities:		
Diabetic	12	17
Hypertension	23	32
Habits:		
Tobacco/ Smoking	22	31
Alcohol	14	20

Table 2 : Clinical Characteristics of Cancer Patients(N=70)

Types of Cancer	Number (N)	Percentage(%)
Solid Cancers	51	73
Hematological Cancer	19	27
Stage of cancer:		
Early Cancer	8	11
Advanced Cancer	62	89
Type of therapy :		
Chemotherapy Treatment	50	71
Target Therapy	5	7
Immunotherapy	3	4
Supportive Therapy	11	17
Hormonal Therapy	1	1

During the study period, clinical status of the malnutrition patients was obtained from the data. Almost 25% (7) of the cases were in clinical remission after the treatment (Table 3). Almost 11%(3) of the cases were in stable state of disease and 14% (4) of the cases were in disease progression. During the study period, total 50%(14) of the cases were alive and 50% (14) cases expired due to disease progression.

Table 3: Clinical Status of Malnutrition Patients (N=28)

Clinical Status	Number(N)	Percentage (%)
Type of cancer:		
Solid Cancers	20	71
Hematological Cancers	8	29
Clinical status of disease:		
Clinical Remission	7	25
Stable Disease	3	11
Disease Progression	4	14
Status of patient:		
Alive	14	50
Dead	14	50

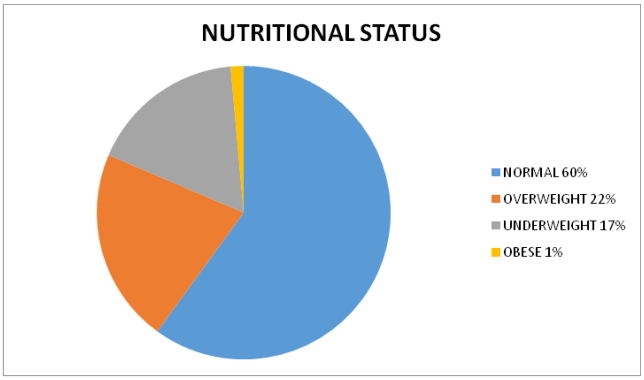

Figure 1: Nutritional Status.

DISCUSSION

Cancer is the second leading cause of mortality worldwide and it is also estimated that around 20% of deaths in cancer patients occurred due to malnutrition and its complications.[3,8]

Amongst the various complications related to cancer as a disease and its treatment, malnutrition poses a serious problem with incidence ranging from 40-80%. Approximately 15–20% of cancer patients are already affected at or before the establishment of the initial diagnosis and the threat increases to almost up to 80–90% of patients with advanced -stage disease. To add up to the issue, low rate of response to treatment has been found among malnourished patients.[9]

In the present study, majority of the malnutrition cases were elderly patients who were diagnosed with advanced cancers. Elderly populations are uniquely susceptible to malnutrition due to the association of aging with factors that influence nutritional status like decreased appetite, weight loss, taste and smell changes, difficulty chewing, fatigue and co-existing morbidities.[10] Almost 20% of the

cases were alcoholic as per the study which could be an additional contributing factor for malnutrition. Since 83% of the cases were from a particular region of eastern region of Nepal mainly Morang and Sunsari districts, we need to focus on malnutrition awareness and screening programs targeting these areas.The increase in malnutrition in these areas could be due to poverty and lack of awareness for the importance of nutrition. As per the nutrition policy and strategy by the ministry of health, we need to create awareness among adults about the importance of maintaining good food habits for life to control the life style related disease including cancer.[11]

We observed that the patients with solid cancers were more malnourished than those with hematological cancers. The possible explanation to this tendency could be the multifactorial genesis of malnutrition in cancer including pro-inflammatory cytokines, parathormone-related peptide, nutrients deficiency, depression, pain etc. Cancer is comparatively a chronic state and the cancerous cells releases chemical mediators which causes anorexia and decrease in desire to eat.[12] Those with gastrointestinal cancers especially esophagus, stomach etc. are mostly undernourished while patients with pancreato-biliary, breast and ovarian cancers are more commonly found to be overweight or obese. Pancreato-biliary cancer are more common in elderly patients especially females of fifty years who are fat with sedentary life style.[13] Dietary modification as well as regular exercise needs to be emphasized for all elderly females to control the obesity.

In our study,50% of malnutrition cases survived which included 25% clinical remission, 11% stable disease and 14% of disease progression. There was 50% mortality due to disease progression. Malnutrition is associated with high morbidity as well as mortality.[14]When cancer-related malnutrition goes untreated, outcome can be very significant. Malnourished cancer patients are at high risk for toxicity of chemotherapy.[15,16] Malnutrition increases financial burden for managing cancer patients which includes longer hospital stays and higher complications rates following the treatment.[17] At its extreme, cancer patients who are malnourished have a two to five fold higher risk of dying than non-malnourished.[15]

We need to make plans and policies to increase awareness for role of malnutrition in cancer and utilize nutritional department in the management of cancer. In collaboration with the oncologists, dietitians play a pivotal role in taking care of malnutrition in cancer patients simultaneously especially for the post operative patients as well as those undergoing chemotherapy as well as radiotherapy. Head and neck cancer patients require special attention for nutritional support as they are more prone due to dysphagia caused by the tumor obstruction. Such cases may even require nasogastric tube feeding for a time being during the treatment.

CONCLUSION

Malnutrition is a major concern even in cancer patients of eastern Nepal due to higher mortality. The strength of this study is that it is a novel study regarding malnutrition prevalence in cancer patients of Nepal. The weakness of this study is the limited number of cases along with a single center study. There is need of comprehensive cancer center providing nutritional support to cancer patients in eastern region of Nepal .

LIMITATION OF THE STUDY

This is a single center study with six months duration and hence our number of cases are limited. We could not address the severe form of malnutrition, cancer cachexia in this research due to insufficient data and lack of resources. Beside this, we could not assess the micronutrients deficiency as well as insufficiency in our study.

RECOMMENDATION

Malnutrition needs to be assessed in every cancer patient and needs to be treated properly. We need to do larger study with large number of patients as well as multi-centric studies for proper defining of the population. Micronutrients deficiency need to be addressed in cancer patients.

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