CLINICO-PATHOLOGICAL STUDY OF SOLID CANCER PATIENTS RECEIVING CHEMOTHERAPY AT BIRAT MEDICAL COLLEGE TEACHING HOSPITAL .

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ABSTRACT

Introduction

Solid cancers are increasing in eastern region of Nepal. There are very few centers providing chemotherapy treatment to solid cancer patients in eastern region of Nepal .

Objectives

The aim of this study is to stratify the types of solid cancers and study their socio-demographic and clinicopathological features of solid cancer .

Methodology

This descriptive cross sectional study was conducted from 1st September 2020 to 1st july 2021 at the department of Oncology. All the histologically proven patients of solid cancers, derived from solid organs like lung, stomach , liver , breast etc, receiving chemotherapy during the study period were taken as study population. All the relevant data were entered in the excel sheet and analyzed by the help of statistical software.

Result

There were total seventy three cases who got admitted for chemotherapy during the study duration at the department of Oncology . The patients were between 30-85 years, with the mean age of 59 years and the proportion of females were almost double (64%) than male. 78% cancers were advanced staged in contrast to 22% early stage cancers. Cases were majorly with clinical remission (30%) out of which most common were breast and colorectal cancers. Total 58% of the cases were alive while 42% of the cases expired during the study period.

Conclusion

There is a need of comprehensive cancer center in eastern region of Nepal due to increase in the burden of solid cancers.

KEYWORDS

Chemotherapy; Demographic ; Solid cancer

INTRODUCTION

It has been estimated that more than 20 million new cases of cancer will occur worldwide in 2025, and a majority of them would be in low and middle income countries (LMICs).[1] Cancer ranks second globally and fifth leading cause of death in Nepal, accounting for an estimated 11,525 deaths in 2015 in Nepal.[2] A report published by WHO has shown that cancer mortality in Nepal is seen more frequently in females than males–7,400 and 6,900 respectively.[3] The major risk factors associated are tobacco smoking, excessive alcohol consumption, household solid fuel, physical inactivity and obesity along with others like environment pollution and excessive pesticides in vegetable and fruits.[3-5] All these risk factors are very common in eastern region of Nepal. Incidence of solid cancers are increasing in the eastern region of Nepal. Amongst the few centres providing cancer services, Birat Medical College Teaching Hospital is well equipped in providing oncology service. At present, we are having ten bedded well equipped medical oncology department along with well trained nursing staffs dedicated to patients care. We also have latest Safety Biocabinet for processing of cytotoxic anti-neoplastic drugs providing highest level of protection to nursing staffs, pharmacist, patients and environment. We are in the developing phase of Comprehensive Cancer Center with procurement of radiation machine along with surgical set up. With this study, we would like to focus on the clinicopathological aspects of cancer that are common in the eastern region of Nepal so that we can focus more on those cancer protocols and treatment plans and policies .

METHODOLOGY

This descriptive cross sectional study was conducted from 1st September 2020 to 1st July 2021 at the department of Oncology, Birat Medical College Teaching Hospital (BMCTH). Ethical clearance was obtained from the Institutional Review Committee (IRC) of Birat Medical College Teaching Hospital for conducting the study.

All the histopathologically proven solid cancer patients receiving chemotherapy at the oncology unit during the specific study periods were taken as study population. Those who were hematological cancer and those not willing to give consent for enrolment for the study were excluded. Neo-adjuvant chemotherapy is defined as chemotherapy given before surgery to downgrade the tumor size, concurrent chemotherapy is chemotherapy given simultaneously with the radiation therapy while adjuvant chemotherapy is chemotherapy given after definitive surgery or radiation therapy.[6] Palliative chemotherapy is the chemotherapy which is used to control the metastatic cancer, increase the life span and prove palliation to the patients. Clinical remission is defined as the cases who after the treatment do not have cancer clinically. Stable disease is defined as the cases whose cancer were stable and not progressed after the treatment. Disease progression is when the cases whose cancer progressed after the treatment and were still alive during the study duration.

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 were analyzed with the help of Statistical Package for Social Sciences (SPSS) version 22. The main objective of the study was to calculate the demographic characteristics, types of cancers prevalent, types of chemotherapy received and clinical status of the patients. The study was supported by a dedicated team, comprised of medical oncology team along with patients and family involvement. Data were collected by either real time meeting or tele-communication. Real time meeting was done during clinical examination of patients in in-patient department for about 15-20 minutes and the data were collected into the excel sheet. In case of mortality at home, data of patients were collected from the family by tele-communication. Written informed consent was obtained from the patient for the treatment as well as for research purpose.

RESULTS

A total of 98 cases got admitted for 323 times during the study duration at the oncology department of BMCTH. Twenty five haematological cases were excluded from the study, hence, a total of seventy three case were included for the study taking inclusion and exclusion criteria under consideration. The mean age of the cases were 59 years (range 30-85) (Table 1) with the proportion of female patients almost double (64%) to that of males. Ninety seven percent of the subjects were married and almost fifty percent cases were in a habit of tobacco/ smoking or alcohol intake. 9-10% of the patients had comorbidities like hypertensive and diabetic. Majority of the patients were Hindu (77%) and 95% were non vegetarian , mostly taking red meat . The patients were mainly inhabitants of Morang and Sunsari districts, which when combined covered almost 75% of the total cases.

Table 1 : Demographic Characteristics of Cancer Patients

Characteristics	Number (N)	Percentage (%)
Mean age (Range)	59 (30-85)	-
Male	26	36
Female	47	64
Married	71	97
Unmarried	2	3
Tobacco/ Smoking	41	56
Alcohol	39	53
Diabetic	8	10
Hypertension	7	9
Hindu	56	77
Muslim	4	5
Christian	13	18
Non Vegetarian	69	95
Vegetarian	4	5
Morang District	30	41
Sunsari District	25	34
Other Districts	18	25

Majority of the reported cases were that of Lung cancer (25%), breast cancer (18%), gastrointestinal (18%) cancer, and pancreatobiliary (18%) cancer (Table 2). 78% cancers

were diagnosed as advanced stage disease in contrast to 22% early stage cancers. There were few cases of (7%) sarcoma and urinary tract cancer involving soft tissue, urinary bladder and prostate respectively. Liver cancer was found to be 1% only .

Table 2 : Types and Stage of Solid Cancers

Types of Cancer	Number (N)	Percentage(%)
Lung Cancer	18	25
Breast Cancer	13	18
Gastrointestinal Cancer	13	18
Pancreatobiliary Cancer	13	18
Sarcoma	5	7
Urinary Tract Cancer	5	7
Nasopharyngeal Cancer	3	4
Ovary Cancer	2	2
Liver Cancer	1	1
Early Cancer (Stage 1,2)	16	22
Advanced Cancer(Stage 3,4)	57	78

During the study, cases received different chemotherapy protocols.[6] Only 4% cases received neo-adjuvant chemotherapy in our study(Table 3). None of the cases received concurrent chemotherapy in our study. 30% of the cases received adjuvant chemotherapy. Almost 66% cases received palliative chemotherapy which suggest advanced staging of the cancer during the diagnosis. Common chemotherapy used were paclitaxel, gemcitabine, carboplatin, 5-flurouracil, capecitabine doxorubicin, cyclophosphamide etc as per the chemotherapy regimens. Majority of the cases received six cycles of chemotherapy either three weekly or weekly in nature.

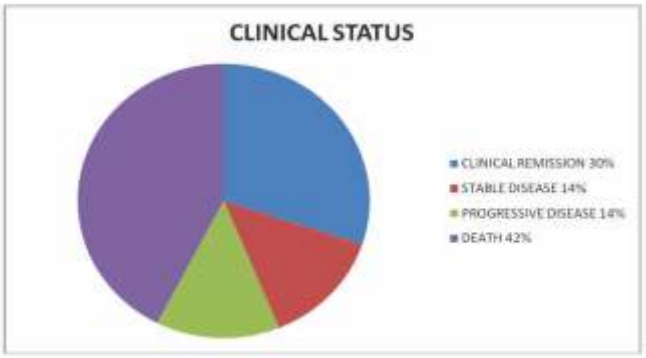
Table 3: Types of Chemotherapy Received

Types of Chemotherapy	Number(N)	Percentage(%)
Neoadjuvant chemotherapy	3	4
Concurrent Chemotherapy	0	0
Adjuvant Chemotherapy	22	30
Palliative Chemotherapy	48	66

During the study period of one year, clinical status of the patients were obtained from the data as per the RECIST criteria.[7] 30% of the cases were in clinical remission after the treatment (Table 4 and Fig 1). 14% of the cases were stable disease and 14% of the cases were in disease progression. During the study period total 58% of the cases were alive and 42% cases expired due to disease progression.

Table 4: Current Clinical Status of Patients

Clinical Status	Number (N)	Percentage (%)
Clinical Remission	22	30%
Stable Disease	10	14%
Disease Progression	10	14%
Alive	42	58%
Death	31	42%



DISCUSSION

In our study, majority of the cases were married elderly females (64%) who were diagnosed with advanced cancer especially lung cancer, breast cancer and pancreato-biliary cancer. 50% of the cases were either smoker/ tobacco chewer or alcoholic as per the study. 95% of the cases were non vegetarian, especially red meat intake. Alcohol, red meat intake and tobacco are the most important risk factors linked to cancer.[8] Since 75% of the cases are from Morang and Sunsari districts only, we need to focus on cancer awareness and screening programs to these two districts strictly. The cause of increase prevalence in this areas could be environmental pollution as well as use of pesticides during farming.[9,10]

As majority of the cancer diagnosed were advanced lung cancer, breast cancer and pancreatobiliary cancers , we need to focus on them more than the other cancers. Since tobacco / smoking is directly related to lung cancer , we need to make strict rules and regulation for decreasing the incidence of tobacco chewing and smoking each year.[11] Quit tobacco/ smoking programs need to be initiated to make public aware of its consequences. Different penalties like fines, isolation/ observation etc need to implemented to reduce smoking at public places. One out of eight women has a risk of developing breast cancer in their life span.[12] Hence, breast cancer screening is the best modality to screen and diagnose breast cancer in early stage and treat them so that they can be cured. Guidelines for breast cancer screening need to be implemented at district level hospitals. Pancreatobiliary cancer are more common in elderly obese patients especially females of fifty year who are fat and having sedentary life.[13] Dietary modification as well as regular exercise need to be emphasized for all elderly females to control the obesity and prevent from such cancers.

As per the chemotherapy protocols, majority of the cases received palliative chemotherapy(66%) as they were diagnosed with advanced metastatic cancer at elderly age with poor performances. The aim of the treatment was just to control the disease and provide palliation to the patients. The causes of being diagnosed as advanced cases could be non implementation of cancer screening programs and delay in the health check up at hospital due to fear of contracting COVID 19 at that time.[14] None of the cases received concurrent chemotherapy in our department as

we don't provide radiation therapy at present. However, our hospital is planning to develop comprehensive cancer center along with radiation therapy by the end of 2021.

We have good clinical remission (30%) of the cases during the study period , majority of which were breast cancers and colorectal cancer cases. They were initially treated surgically followed by the adjuvant chemotherapy. Total 58% of the cases were alive till the last date of the study which included cases with clinical remission, stable disease along with disease progression. 42% of the cases expired during the study period, majority of which were lung cancer and pancreatico-biliary cancers in advanced stage. High mortality in these cases could be due to delay in the diagnosis at early stage and elderly patients with poor performances. Lack of awareness about the prognosis of cancer among patients, families, and even health care professionals leads to delay in screening and diagnosis, increasing the number of advanced-stage cancers which increases the morbidity and mortality.[15] We need to make plans and policies to decrease the delay in the early diagnosis of cancer with timely referral to an oncologist or cancer centers in case of suspicious malignancy by the treating physicians.

CONCLUSION

There is a need of comprehensive cancer center in eastern region of Nepal due to increase in the burden of solid cancers. Comprehensive cancer center should provide all the preventive, curative as well as research work related to cancer to provide the best advance cancer care to the patients in Eastern region of Nepal.

LIMITATION OF THE STUDY

This is a single center study with one year duration only and hence our number of cases are limited. There was difficulty in staging of cases for lymphnode dissection and metastatic workup properly due to lack of resources. Beside this, there was severe impact by the first wave of COVID 19 pandemic at the same study duration due to long lockdown implemented by the government. If we collaborate with other institutions and do multi centered study we will have more number of cases which will define the population of eastern region of Nepal more evenly and precisely.

RECOMMENDATION

In our study, we can see many advanced cases with high mortality especially in elderly females. So, we need to make plans and policies regarding proper screening of these common cancers and diagnose them early so that we can treat them properly. Breast cancer screening should be made mandatory for all women more than 40 years of age. Smoking / Tobacco chewing at public places and alcohol restrictions need to be implemented strictly as per the local government policies. To prevent pancreatobiliary cancer, diet modifications and exercise/ yoga need to be implemented especially to females more than 40 years old to control the obesity.

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