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Clinical Profile and Patterns of Malignant Tumors at Debre Tabor General Hospital, North Central Ethiopia: A Three Years Retrospective Study

Aragaw Tesfaw[1]*, Maru Mekie[2], Alehegn Aderaw[2], Tesfaneh Shimeles[1] and Wubet Taklual[1]

[1]*Department of Public Health, College of Health Science, Debre Tabor University, Debre Tabor, Ethiopia*
[2]*Department of Midwifery, College of Health Science, Debre Tabor University, Debre Tabor, Ethiopia*

Abstract

Background: Cancer is now becoming an emerging public health problem in developing countries including Ethiopia. Majority (70%) of deaths from cancer occur in low- and middle-income countries due advanced stage presentation, in accessible diagnosis, and treatment. However, little is known about the problem in Ethiopia. Studies related to the area are scarce at all.

Methods: Retrospective cross-sectional study design was conducted from January to April 2018. The medical records of cancer patients diagnosed from January 1, 2016 to December 30, 2018 were reviewed. Information on socio-demographic characteristics, clinical stage at diagnosis and tumor characteristics was taken from the medical records. Descriptive statistics were used to summarize socio-demographic and clinical characteristic of study population. Tables and figures were used to describe the pattern and type of malignant tumors. Data was enetered in Epi info version-7.2 and analysed using Microsoft excel and statistical package for social science (SPSS) version 23.

Results: A total of 188 cancer patients were included in the study. The mean age of patients at diagnosis were 45.5 ± 13.5years. There was increasing patterns of cancer cases in three years duration. The number of cancer case has increased from 42 in 2016 to 81 in 2016. With regards to case distribution, cervical 58 (30.9%), breast 47(25%), ovarian and colorectal cancer 13(6.9%) accounts the largest proportion of cancer cases. The majority, 179 (95.2%) of patients were women. About 104 (55.3%) of patients were rural residents. Family history of cancer was found on 21 (20.2%) of patients. Stage was determined only for 87 (46.3%) of the patients from which stage I accounts 17 (19.5%), stage II 23 (26.4%), stage III (39.1%) and stage IV accounts 13 (14.9%).

Conclusion and Recommendations: Overall, an increasing pattern of cancer cases were reported over a period of three years. Cancer of the cervix and breast were the commonest cancers observed mainly on the female population. Therefore evidence-based interventions shall be designed to tackle the problem through early prevention, detection and screening services both at primary health care units and hospitals.

Keywords: Malignancy; Clinical profile; Pattern; Ethiopia

Introduction

Non-communicable diseases (NCDs) are now becomes emerging public health problems and responsible for the majority of global deaths. Malignant tumors are expected to rank as the leading cause of death and causes of decreasing life expectancy in every country of the world [1,2].

Cancer can affect the various parts of the body and all human beings; however, the type and patterns of occurrence vary depending on various factors like geographical location, socio-economic status, life style, genetic and other risk factors. It is the second leading cause of death globally, and was responsible for 8.8 million deaths in 2015 alone. Globally, nearly 1 in 6 deaths is due to cancer. Approximately 70% of deaths from cancer occur in low and middle-income countries due to late-stage presentation, inaccessible diagnosis, and treatment [3,4].

According to the Gobocan 2012 estimate, there were 14.1 million new cancer cases diagnosed worldwide and 8.2 million estimated deaths [4]. The most common cancers in men were cancers of the lung (16.7%), prostate (15.0%) and colorectal (10.0%) while, cancers of the breast (25.2%) was the first and colorectal cancers were the second in women's [5].

The incidence and mortality related to cancer are rapidly growing worldwide. The reasons are complex but reflect both aging and growth of population, as well as changes in the prevalence and distribution of the main risk factors for cancer; several of which are associated with socioeconomic development [1,2].

Nearly one third to half, of cancer cases can be prevented by avoiding risk factors and implementing evidence-based prevention strategies through early detection of cancer and management of patients who develop cancer [6]. When identified early, many cancer patients have a high chance of being cured and more likely to respond to treatment and can result in a greater probability of surviving, less morbidity, and less expensive treatment [7].

When cancer cases are detected and treated at early stages, the probability of being cured will be high and there will be good prognosis. In high-income countries, cancer is often diagnosed at an early stage and the prognosis is good [8]. However, most patients in low and middle income countries are diagnosed at a later stage due to poor community awareness, inadequate pathology services and treatment options [9,10]. Like other Sub-Saharan countries, the incidence of cancer is rising in Ethiopia [11]. According to the Glob can 2012 estimate in Ethiopia

***Corresponding author:** Aragaw Tesfaw, Department of Public Health, College of Health Science, Debre Tabor University, Debre Tabor, Ethiopia, Tel: +251921743820; E-mail: aragawtesfaw058@yahoo.com

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60,749 of the population had cancer from which cancers of colorectal (19%), leukemia (18%) and prostate (11%) are commonest in males and cancers of the breast (31%), cervix (16%) and ovary (6%) are the commonest in females [5]. The report from the only population based cancer registration in Ethiopia also showed that a total of 8,449 cancer cases were diagnosed in 2014. Among these 5,685 cases were among females (67%) and 33% were male cancers [12].

Similarly, out of 3,231 samples 1,263 biopsies and 1,968 FNAC evaluated in University of Gondar hospital in 2014 – 2015, 540 (16.7%) were malignant cancer case. Among these lymphoma 93 (17.2%), Cervical cancer 82 (15.2%), Breast cancer 76 (14.1%), Thyroid cancer 47 (8.7%), Head and neck squamous cell Carcinoma 34 (6.3%), Skin cancers 33 (6.1%), Colorectal cancer 26 (4.8%), Ovarian cancer 17 (3.1%), Hepatocellular cancer 12 (2.2%), Salivary gland tumors 12 (2.2%) were diagnosed cancers on the study period [11].

Low emphasis has given for non-communicable diseases particularly cancer in Sub-Saharan African countries (SSA) including Ethiopia since priority is given to infectious disease like HIV/AIDS, Malaria, and TB. As a result, the burden of cancer is not clearly known despite the existence of the problem [13,14]. Although Ethiopia has launched the national cancer control plan to tackle the problem through primary prevention, screening and early detection programs, information regarding cancer particularly in the rural areas is lacking. Despite early diagnosis of cancer with accessible, affordable and effective treatment results in improvements in both the stage of cancer at presentation and mortality from cancer, many health systems in low- and middle-income countries are least prepared to manage the burden of cancer, and patients do not have access to timely, high-quality diagnosis or treatment. In addition little community awareness, inadequate advanced pathology services and fragmented treatment options are the biggest challenges for low-income countries including Ethiopia [9,14].

Although the number of patients with diagnosis of different types of cancers is rising in Ethiopia, there is only one population based cancer registry and radiotherapy center in the country. Information regarding the pattern of malignant tumors is scare at all at general hospitals which mainly serve majority of the rural population of the country since some of the available reports are based on the only oncology center at Addis Ababa which may not be representative of the rural population who are disadvantaged due to inadequate access to the cancer center, economical problems and poor referral linkages [15,16]. Therefore, our study aimed to examine the pattern and clinical profiles of malignant tumors at Debre Tabor General Hospital in Northcentral Ethiopia to generate information and alert the policymakers, national as well as local programmers about the need to develop effective interventions for addressing the problem both at clinical and community settings.

Methods and Methods

Study design, area and population

Retrospective data on medical records of cancer patients was reviewed from February to April 2019 in Debre Tabor General Hospital which is located 667 km from Addis Ababa (the capital city of Ethiopia). The hospital currently serves approximately 3.5 million people in its cathment area and used as a teaching hospital for different disciplines of medical and health sciences students of DebreTabor University. The hospital also provides dignostic and surgical treatment service for different benign and malignat tumors and refer cases for chemotherapy and radiotherapy service to higher set ups in the country.

The study subjects were all cancer patients' medical records that have been diagnosed in the last three years period (from January 1, 2016 to December 31, 2018) in the hospital. Pathologically confirmed cases were included in the study whereas, patients with incomplete and absent medical records were excluded from the study.

Sample size, sampling technique and data collection procedures

All the available cancer patients' medical records were reviewed based on the eligibility criteria in Debre Tabor General Hospital. Data were collected on the socio demographic, clinical stage, and tumor characteristics of patients. First, the medical record number of all cancer patients were identified from surgical and gynecological, and obstetrics ward and at cervical cancer screeing room registration books. Then the medical records were obtained at the hospital record unit using their identification number. All the data pertinent to the study were filled from patients' medical records. Two data collectors and two supervisors were recruited to extract data from medical records. The data collectors were BSc nurses who were working more than two years in the hospital and the supervisors were 2 master of public health lecturers at Debre Tabor University.

The total number of patients diagnosed with cancer and registered in the last three years period in the hospital were 249. Sixty one cases were excluded, 32 patients for not having any pathology report and about 29 medical records were missed for review. Hence, patients' medical records which fulfilled the inclusion criteria were 188. Therefore the medical records of all 188 patients which fulfilled the inclusion criteria were reviewed and analysed. To assure the quality of the data, data extraction check list were prepared in a simple and easily understandable language. Two days training was given for data collectors and supervisors before data collection. Strict supervision and monitoring was done during data collection period.

Data processing and analysis procedures

The data were entered and cleaned using Epi info version 7.2 and exported to statistical package for social sciences (SPSS) version 23 for further analysis. Descriptive analysis was conducted using frequency and other summery measures.

Ethical considerations

An ethical permission was obtained from a Research Ethics committee of College of Health Science, Debre Tabor University. The permission and agreement consent was taken from Debre Tabor General Hospital prior to the study after a brief explanation of the purpose of the study. In addition, other concerned bodies (hospital medical directors and health care providers) were informed and briefed about the study before the start of data collection. The anonymity of the patient's medical records were kept confidential.

Results

Socio-demographic and clinical characteristics of patients

From a total of 249 cancer patients diagnosed and registered in the hospital, 188 medical records were fulfilled the inclusion criteria and reviewed. The mean (SD) age of patients at diagnosis was 45.5 ± 13.5years with a range of 10 to 85 years. More than three fourth, 164 (87.2%) of patients were below 40 years of age. Females 179 (95.2%) account the largest proportion. More than half, 104 (55.5%) of patients were from rural residence. Among the cancer patients record reviewed, family history of cancer was found on 21 (20.2%) of patients. About 44

(39.3%) had history of comorbidities (hypertension, Diabetic Melities and heart disease). Breast lump 28 (14.9%), abnormal uterine bleeding 91(48.4%) and swelling on the body 17(9%) were the commonest presenting compliants (Table 1).

Tumor charactertistcs of cancer patients

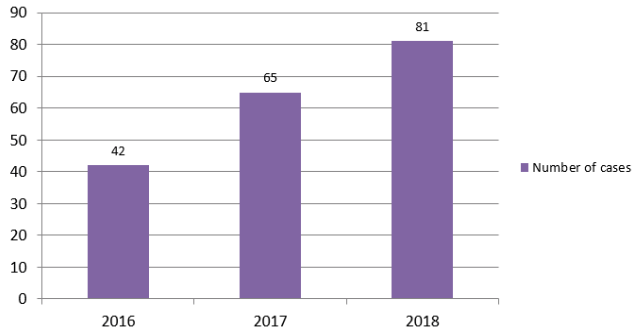
Among cancer patients' medical records reviewed, cancer of the cervix 58(30.9%), breast 47(25%), ovarian 19 (10.1%) and colorectal cancers 13 (6.9%) accounted for the largest proportion of malignant tumor cases. Stage at diagnosis was determined for only 87 (46.3%) of the patients from which stage I accounts 17 (19.5%), stage II 23 (26.4%), stage III 34 (39.1%) and stage IV accounts 13 (14.9%). The review also found that 78 (41.5%) of patients had referral history from another health facility. About 22 (28.2%) of patients were referred from health center and 56 (71.8%) were referred from primary hospitals. The majorty 133 (70.7%) of patients had more than 3 month delay to vist health facility. Biopsy was done for 124 (66%) of the patients. The review also showed that 101 (53.7%) of patients have recived treatment (Figures 1-3 and Table 2).

Discussion

The morbidity and mortality due to cancer is a growing global concern and it is now becoming an emerging public health issue in the current helath care system of most developing countries. Although the incidence of cancer vary form region to region, it is now increasing in developing countries particularly in Sub-Saharan Africa associated with life style changes, changes in diet and poor physical activities. Despite there is high prevalence of of malignant cancer cases in high income countries, the mortality is higher in resources limited countries like Ethiopia mainly due to delay in presentation to health facilities which intern causes progression or advancement of the disease to late stage. In addition to this, the absence of adequate diagnostic and treatment facilities with low public awareness about cancer makes the problem worse [3,17,18].

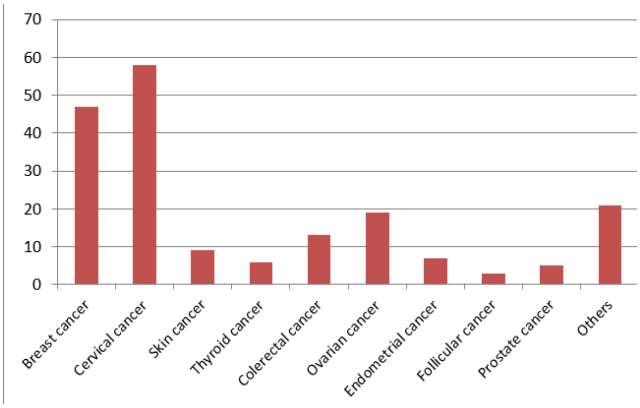
Characteristics	Frequency	Percentage
Age group (n=188)		
<20	81	43.1
20-39	83	44.1
40-59	24	12.8
60+	81	43.1
Mean (SD)	45.5 ± 13.5 years	
Sex		
Male	9	4.8
Female	179	95.2
Place of Residence		
Rural	104	55.3
Urban	84	44.7
Family history of cancer (n=106)		
Yes	21	20.2
No	83	79.8
History of any comorbidities (n= 112)		
Yes	44	39.3
No	68	60.7
Presenting compliant		
Breast lump	31	16.5
Abnormal uterine bleeding	98	52.1
Swelling on the body	26	13.8
Abdominal distention	24	12.8
Others*	9	4.8
Other*= Nipple discharge, Breast ulcer, Skin color change, Difficulty of urination, Blood in the stool, Difficulty of losing stool		

Table 1: Socio-demographic and clinical characteristics of cancer patients diagnosed from 2016 to 2018 at Debre Tabor General Hospital, North-Central Ethiopia, 2019.



Note: The number of malignant tumour has increased from 2016 to 2017 from 22.3% to 43.1% respectively.

Figure 1: Pattern of cancer cases diagnosed at Debre Tabor General Hospital, North-Central Ethiopia, 2019.



Note: Breast and cervical cancer were the two most commonly diagnosed cancers in Debre Tabor General Hospital from 2016 to 2018.

Figure 2: Type of malignant tumor cases diagnosed at Debre Tabor General Hospital from January 1, 2016 to December 30, 2018, North central Ethiopia, 2019.

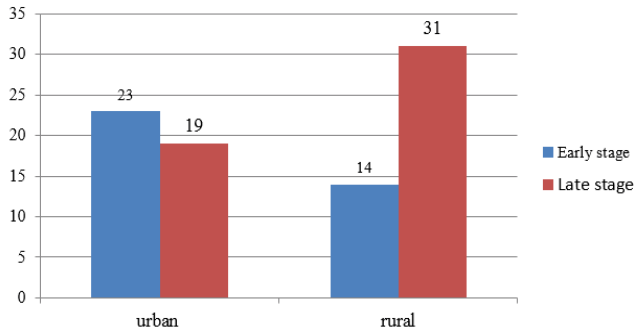


Figure 3: Clinical stage distribution of cancer patients by residence at Debre Tabor General Hospital, 2019.

Note: Most patients from rural areas were commonly present at late clinical stages as compared to urban residents.

Characteristics	Frequency	Percentage
Type of tumor /Confirmed cancer case		
Breast cancer	47	25
Cervical cancer	58	30.9
Skin cancer	9	4.9
Thyroid cancer	6	3.2
Colerectal cancer	13	6.9
Ovarian cancer	19	10.1
Endometrial cancer	7	3.7
Follicular cancer	3	1.6
Prostate cancer	5	2.7
Others	21	11.2
Stage at diagnosis (n=87)		
I	17	19.5
II	23	26.4
III	34	39.1
IV	13	14.9
Duration of symptoms		
<3 months	34	18.1
≥ 3 months	133	70.7
Unknown	21	11.2
Type of diagnostic investigation made		
FNAC	39	20.7
Excisional biopsy	124	66.0
Others	25	13.3
Patient had taken any treatment		
Yes	101	53.7
No	87	42.7
Type of treatment given		
Surgey	93	49.5
Cryotheraphy	3	1.6
Others**	5	2.7
Unknown	87	46.3
Have referral history from other health facility		
Yes	78	41.5
No	110	58.5
Types of referring health facility (n=78)		
Health center	22	28.2
Primary hospital	56	71.8

Others*= Esophageal cancer, bone cancer, liver cancer, papillary cancer, testicular cancer, gastric cancer.
Others**= Referred for chemotherapy and radiotherapy, Number of malignant tumors at Debre Tabor General Hospital

Table 2: Tumor characteristics of cancer patients diagnosed from January 1, 2016 to December 30, 2018 at Debre Tabor General Hospital, North-central Ethiopia, 2019.

Despite there is only one national cancer registry in Ethiopia which is located at the capital city of the country (Addis Ababa), its report focus mainly on the number of cancer cases diagnosed in the city not include the majority of cancer cases from the coutry side. Therefore, our study is the first study in the area which tried to provide information on the clinical profiles and the pattern of cancer cases at Debre Tabor General hospital which is one of the rural hospitals in the country [14]. This study reaveled that the majority of pateints were females, 179 (95.2%) and males account only 4.8% of patients. The finding of our study is supported by a study done in Tikur Anbesa Hospital which reported 72.8% and 27.2% of cancer cases among female and male patients respectively [15]. This finding implies that the majority of cancer cases in Ethiopia are gynecological cancers mainly cervical and ovarian cancers including breast cancer that mostly affect females.

The present shows an increasing pattern of maliganat tumors over the study period (from January 1, 2016 to December 30, 2018). This finding is consistent with a study conducted at Tikur Anbesa Specialized Hospital (Addis Ababa) the only oncology unit in Ethiopia which showed an increasing trends of cancer cases in the country [15]. This increasing number of cases might be related to improvements in health seeking behaviour of the people, increase in health services coverage or the emerging of new cancerous cases in the country probably due to changes in dietry habit and life changes. The increasing trends of cancer cases might also be related to absence of specific cancer prevention polices since more focus is given to infectious disease like HIV/AIDS, TB and malaria than cancer in the country [16,19].

According to the national cancer registry report, cancers of the breast, cervix, colorectal and ovary are the commonest cancers in females [5]. Similary, in our study cancer of the cervix 58(30.9%), breast 47(25%), ovary 19 (10.1%) and colorectal cancers 13 (6.9%) accounted for the largest proportion of cancer cases. Our finding is consistent with Globacan report [4]. The finding implies that breast and cervical cancer are the commonest cancer cases and need interventions to decrease the moratality as well as the morbidity due to these diseases. In our study, among the patients whose stage is determined, the majorty were presented at advanced stage (stage III and above). Similarly, the finding is in line with study done at Tikur Anbesa hospital oncology unit in which only 10% of patients did come to the center in early stage I and II. It is also in acoordance with a reports from developing countries like Sub-Saharan Africa. This might be due to low community awareness, lack of screening programs, inadequate pathology services and treatment options in the country [16].

However, late stage presentation at first diagnosis is much higher in our study compared withthe finding from high income countries [20]. This great variation could be related to difference in the availability, accessibility of diagnostic and treatment facilities and variation in public awareness about cancer cases. But in most developing countries like Ethiopia, the public awareness about the disease is very low. Furthermore patients experience very long diagnostic delays both at home and at health care facilities and advanced stage presentation is very common in Ethiopia in contrast to developed countries where there is access to diagnostic and treatment facilities with high public awareness about the disease [16]. In the current study, most patients presented after a delay of more than three months. This might be related to patients' preference of traditional and religious treatment options than modern health care. Late presentation because of cultural influence results advanced stage presentation in which most patients need palliative care and have very short survival rates [21].

In our study most of the patients were young adults below 40 years of age. The result is also in line with a study conducted at Tikur Anbesa specialised hospital in which the largest group of cancer patients were in below 50 years at diagnosis [15]. In our finding patients from rural area were presented at late stage (Stage III&IV) than urban residenets. The possible reason for this could be due to lack of access to information to the rural people and being at remote locations which affects early medical care accessibility.

Our study has certain limitaions and strengths. This study is the first study conducted in the hospital which mainly serve the rural population in the Northcentral corner of the country by inclusion of all the available cases diagnosed in the last three year period and it tried to show the clinical stage distribution and pattern of breast cancer on the study area. But our study has also limitations due to incompleteness and absence of records on socio demographic and clinical variables.

Conclusion

In conclusion, an increasing pattern of cancer cases was observed over the study period with advanced stage presentation which implies a need to apply evidence based interventions to alleviate the problem through primary prevention, early detection and screening of cases through increasing public awareness both at clinical and community settings.

Declarations

Ethics approval and consent to participate

An ethical permission was obtained from a Research Ethics committee of college of health science, Debre Tabor University. The permission and agreement consent was taken from Debre Tabor General hospital prior to the study after a brief explanation of the purpose of the study. The anonymity of the patient's medical records were kept confidential.

Consent for publication

Not applicable.

Availabilty of data and materials

The datasets are obtained from the crossponding author through reasonable requests.

Competing interests

The authors declared as there is no competing of interest.

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Authors contributions

AT- involved in write up of the proposal, data entry, data analysis and final manuscript write up, while AD,WT, MM and TS involved in data analyisis and final manuscript write up. The final manuscript is read and approved by all authors.

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