

Five Years (2011-2017) Cancer Morbidity in Tigray, Ethiopia: A Secondary Data Scanning and Analysis

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Abstract

Background: Cancer is an important public health concern worldwide. Globally, 14.1 million new cancer cases and 8.2 million deaths occurred in 2012. In recent years, there has been an increasing concern to prevent cancer in low income countries including Ethiopia. However, evidences showed that cancer morbidity is alarmingly increasing. This study was conducted to assess the trend and pattern of cancer morbidity in Tigray regional state, Ethiopia.

Methods: Retrospective data scanning and analysis was conducted using Electronic Health Management Information System data base from 2011/2012-2016/2017 in Tigray Regional Health Bureau. Data were filtered in Excel- sheet and exported to SPSS version 21 for statistical analysis. Finally, descriptive statistics were used to display the results using line and bar graph.

Results: Out of the total 4630 diagnosed cancer cases, 2943 (63.6%) were female and 4136 (89.3%) were diagnosed in adults greater than 14 years of age. Unspecified malignant neoplasm, breast cancer, and lymphoma are the three top diagnosed cancer types in all age groups respectively. The trend of cancer morbidity increased by 2.6% in 2016/2017 when compared with 2011/2012.

Conclusion: Cancer has been increasingly a major public health problem in Tigray. Therefore, there is a need of paradigm shift for preventing and controlling cancer in line with infectious disease control and prevention at community level. Similarly, it should be a cross cutting issue in all government and non-government sectors. Finally, further comprehensive study also needed to get further evidenced based information for redesigning program planning and implementation.

Keywords: Cancer; Tigray; Oncology

Introduction

Cancer is an important public health concern and common cause of morbidity and mortality worldwide. Around 14.1 million new cancer cases and 8.2 million deaths occurred in 2012 worldwide. It is estimated that around 43% of cancer deaths are due to tobacco use, unhealthy diet, alcohol consumption, inactive life style and infection [1].

In Africa it is the newly emerging public health problem which accounts 847,000 new cases (6% of the world total) and 591,000 deaths (7.2% of the world total) in 2012. The composition of the breast cancer (133,900 or 27.6% of cases) and cervical cancer (99,000 or 20.4% of cases) are by far the most common [2]. Similarly, it is an emerging cause of morbidity and mortality in Sub-Saharan Africa. Accordingly, common diagnosed cancer types were Kaposi sarcoma (9.2%), liver cancer (9.7%), prostate cancer (20.3%) in males and cervix cancer (25.2%), breast cancer (25.2%) and colorectal in women respectively [2,3].

In Ethiopia it also in an alarming rate approximately more than 60,000 cases per year [4]. The problem may grow further in the coming decades in the country due to increased population growth, increased life expectancy, risk factors associated with economic and social transmission and change in life style. The countries readiness for

cancer treatment may not accommodate the future cancer burden in the country since only Black Lion Hospital in Addis Ababa serve for all cancer patients at country level [4,5].

Studies conducted from cancer registry in Black Lion Hospital in Addis Ababa shows cancer of Leukemia (18%), Colorectal (19%), Prostate (11%), Breast Cancer (31%), Cervical Cancer (16%) are common cancer types in Ethiopia [6]. However, there is no current published data in the country showing the current pattern and trend of cancer distribution in regional states of Ethiopia including Tigray. Therefore, this study was designed to be carried out to assess the pattern and trend of cancer morbidity and mortality from 2011/2012-2016/2017 in Tigray, Northern Ethiopia.

Methodology

Study area and period

The study was conducted in Tigray region, Northern Ethiopia at a distant of 800 km from Addis Ababa. The region health sector program was designed with three health tier system including Specialized Hospital, General Hospital, Primary Health Care unit including Health Centers and Health Posts. Based on this health tire system, the region consisting of 1 specialized hospital, 15 general hospitals, 22 district level primary hospitals, 202 health centers, and 712 health posts at

community level. Data scanning was conducted from March-April 2017/2018.

Inclusion criteria

All patents not completely registered with respect to variable of interest for this study were excluded from the study. All patents recorded in cancer registry and have full information concerning the interest of study variables.

Study design and population

Retrospective secondary data scanning and analysis were conducted from Tigray Regional Health Bureau Electronic Health Management Information System data base unit. All patients diagnosed, recorded, and reported from Inpatient department from August 2011/2012-September 2016/2017 were included for the study.

Data collection and handling

Five years data on cancer were scanned from Tigray Regional Health Bureau e-HMIS data base unit by trained Biostatisticians. Scanned data were filtered and documented in to Excel sheet for checking its consistency and validity and transported to SPSS version 21 for statistical analysis. Finally, descriptive statistics were used to display the results using line and bar graph.

Results

Socio-demographic

A total of 5420 cases were found registered and reported in to the regional health management information data base. Among these, 790 were excluded because they were found to be not full filling the inclusion criteria. The remaining 4630 diagnosed cancer cases were analyzed. Of which, 2943 (63.6%) were female and 4136 (89.3%) were diagnosed in adults greater than 14 years of age (Table 1).

Category		Frequency N (%)
Sex	Male	1687 (36.4)
	Female	2943 (63.6)
	<= 4	239 (5.2)
Age	May-14	255 (5.5)
	>=15	4136 (89.3)

 Table 1: Cancer Distribution in terms of age and sex at Tigray, Ethiopia from 2011/2012-2016/2017.

Cancer distribution

Commonly, seven cancer types have been diagnosed namely; Breast cancer, cervical cancer, leukemia, lymphoma, unspecified malignant neoplasm, uterine fibroma and Unspecified benign neoplasm. Among these, unspecified malignant neoplasm is the leading cause of cancer morbidity that accounts 29.1% of all cases. Similarly, breast cancer ranked second and comprises 24.6% of the total cases (Table 2).

Listed cancer types	Frequency N (%)
Other or unspecified malignant neoplasm	1349 (29.1)
Breast cancer	1139 (24.6)
Lymphoma	822 (17.8)
Other or unspecified benign neoplasm	729 (15.7)
Leukemia	277 (6)
Cancer of the cervix	192 (4.1)
Uterine fibroma	122 (2.6)

Table 2: Top Seven Cancer Types Seen at Tigray Region, Ethiopia from2011/2012-2016/2017.

Cancer morbidity by gender and age

Of the total 4630 reported cases, 1687 (36.4%) were male and 2943 (63.6%) were female (Table 1). Breast cancer (88.3%) is common type of cancer in females. On the other hand, leukemia and lymphoma are commonly diagnosed in males (Figure 1). With respect to age, breast cancer and unspecified malignant neoplasm were commonly diagnosed in adults greater than 14 years of age. Similarly, lymphoma and unspecified malignant neoplasm were common in children less than 15 years of age (Figure 2).



Figure 1: Patter of Cancer Morbidity by gender in Tigray Region, Ethiopia from 2011/2012-2016/2017.





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Cancer morbidity trend

Generally, morbidity line in graph (Figure 3) showed that the magnitude of diagnosis of cancer cases in the region is increasing through five successive years from 2011/2012-2016/2017. The magnitude of total cancer cases in 2016/2017 increased by 2.6% with their counterparts in 2011/2012.



Figure 3: Trend of Cancer Morbidity in Tigray Region, Ethiopia from 2011/2012-2016/2017.

Discussion

Data scanning was started from 2011/2012 because before that there was no standardized cancer data registry until the introduction of the country's newly emerged Health Management Information System in 2011/2012 [5].

Even though various studies showed that cancer is dramatically increasing, attention has not been given especially in developing countries including Ethiopia. The reason for this may be their great experience and memories of communicable disease such as HIV/ AIDS, malaria and TB that occurred as an epidemic in the past decades in which millions were lost their life due to the effect of these diseases [7].

The finding of this study indicated that cancer has been a major public health challenge in Tigray region in the previous year even and it will be in the future. Of diagnosed cancer types, lymphoma, cervical cancer and breast cancer were among the common top seven listed cancer types in the region. This finding is similar as evidenced from Gondar University, North-western Ethiopia [6] but in contrast with a study reviewed from Addis Ababa city cancer registry in which none of them were under top seven lists [8].

The study finding showed that unspecified malignant neoplasm was the leading cause of morbidity among the seven to ten cancer types in Tigray. However, this finding is contrast with evidence from similar study conducted in Gondar University, North-western Ethiopia in which lymphoma was the leading cause among top ten cancer related morbidity [6]. The difference might be due to health care providers' poor skill of diagnosis in public hospitals in Tigray compared with high skilled professional working at university level in Gondar. On the other hand, the study finding also revealed that females are more affected (89.3%) than males. Similarly, breast cancer is the leading cancer type commonly diagnosed in women. This was similar with a study finding in Tikur Ambessa Specialized Hospital Oncology center in Addis Ababa [9] and similar hospital based cancer registry report review conducted in developing countries such as Kenya, Uganda, and Rwanda in which breast cancer was found to be the most frequently diagnosed and the leading cause of morbidity in women [10].

Similarly, leukemia and lymphoma were found commonly diagnosed in men. These findings were found comply with evidence from Nigeria [11] but in contrast in case of Zimbabwe in which prostate and lung cancer were common in males [12]. This difference might arise due to the countries diversity of socio demographic characteristics and the study area had strong rules and regulation for not smoking cigarette around gathered people. This might had an effect for not developing lung cancer in the community.

The other finding of the study showed that the magnitude of all cancer types diagnosed in the study region has been doubled (2.6%) in 2016/2017 when compared with 2011/2012. This alarming increase indicated the need for program implementers and policy makers to a paradigm shift in preventing and controlling non-communicate disease such as cancer.

Conclusion and Recommendation

Seven common cancer types were diagnosed and reported in Tigray namely; breast cancer, cervical cancer, leukemia, lymphoma, unspecified malignant neoplasm, uterine fibroma and unspecified benign neoplasm. Unspecified malignant neoplasm is the leading cause of cancer morbidity in all age groups that accounts 29.1% of all cases. Similarly, breast cancer ranked second. The magnitude of diagnosis of cancer cases in the region is increasing through five successive years from 2011/2012-2016/2017. Its increment was by 2.6% with their counterparts in 2011/2012. Therefore, there is a need of paradigm shift for preventing and controlling cancer in line with infectious disease control and prevention at community level. Similarly, it should be a cross cutting issue in all government and nongovernment sectors. Finally, further comprehensive study also needed to get further evidenced based information for redesigning program planning and implementation.

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Conflict of Interest

We authors declared that don't have any conflict of interest that affect and influence this work.

Budget

No budget is allocated for this work.

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