

Patterns of Cancer Occurrence In Nepal

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ABSTRACT

Background: Cancer is a public health problem throughout the world and Nepal is not an exception. Actual information on pattern of cancer morbidity and mortality is possible only from population-based registry, which unfortunately is lacking in Nepal.

Objectives: The objective of this study is to determine the pattern of cancer occurrence in Nepal with respect to different pertinent variables.

Methods: A descriptive cross sectional study was done among 198 admitted patients from Bhaktapur Cancer Hospital using semi-structured interview schedule. Data entry and analysis was done on IBM SPSS V20. Descriptive statistical measures were employed.

Results: This study showed that cancer was seen in advanced age group with no sex wise variations. Majority was married, literate, from rural area, of upper caste and upper lower socioeconomic status. Cancer of lung, rectum and bile duct were more frequent in males in contrary to that of breast, ovary and cervix in females. Malignant neoplasm of digestive organs in males and that of female genital organs in females were the commonest to occur according to ICD-10 classification.

Conclusions: Cancer is rapidly emerging non-communicable disease throughout the world. Despite lack of population based disease registry, patterns of disease from this hospital study emphasize prioritizing the health promotive activities against cancer in the general population.

Keywords

Bhaktapur Cancer Hospital, Cancer, ICD-10, Sex-wise variation.

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INTRODUCTION

Cancer is a public health problem throughout the world and Nepal is not an exception. In 2012, there were 14.1 million new cancer cases, 8.2 million cancer deaths and 32.6 million people living with cancer (Within five years of diagnosis) globally. In the same year, an estimated 19 thousands new cancer cases and 14 thousands cancer deaths occurred in Nepal¹.

Actual information on pattern of cancer morbidity and mortality is possible only from population-based registry, which unfortunately is lacking in Nepal. Hospital based studies have shown that cancers of lung, oral cavity, larynx and stomach in males, and cancers of uterine cervix, breast, lung and ovary in females are the most frequent cancers reported in Nepal. Leukemia is common in case of children. Shifts in the main cancers are noted with

different ages, with leukemias and lymphomas in young individuals replaced by lung, oral and stomach cancers in middle aged and lung, stomach and larynx cancers in the older category of males. In females the shift is to breast cancer in young women, then cervical cancer in middle age followed by lung cancer in the very aged. There results can vary between hospitals and regions within the country².

A significant proportion (23%) of total cancer patients in Nepal seeking cancer care inside the country are found to approach Bhaktapur Cancer hospital². A large body of literature exists on the epidemiology of cancer in the Western world and some Asian countries. But, little has been done in Nepal in this regard. So the present study in the same hospital has been carried out to comprehensively delineate the cancer patterns in context of Nepal taking account of inadequate previous studies.

METHODS

A descriptive cross sectional study was done among 198 admitted patients from Bhaktapur Cancer Hospital, a specialized cancer care center, managed by Nepal Cancer Relief Society and located in the Bhaktapur district, Nepal. Study subjects were adult cancer patients, aged 18 and above, admitted in that center during four months of study period and willing to participate in this study. All invasive cancers in categories (C00-C99), precancerous lesions and in-situ carcinomas in categories (D00-D48) from International Classification of Diseases 10th Revision³ (ICD-10), diagnosed by histopathology or radiology or other methods, were included in the study. Convenience sampling, a type of non-probability sampling method was used. Those who were seriously ill or in terminal stage or were unable to answer the questions were excluded.

Paper and pencil based interview was done with semi structured interview schedule. Data entry and analysis was done on IBM SPSS V20. Descriptive statistical measures were employed. Written consent was taken from patients, approval from Bhaktapur Cancer Hospital and ethical clearance from Institutional Research Committee. Patients had the right to refuse participation in the study and also the freedom to withdraw from it at anytime. The identity of the respondents and their response were kept confidential and the data were used for research purpose only.

RESULTS

Out of total 198 patients, 51% (101) were males and 49% (97) were females. The sex ratio was 1.04. Youngest and oldest ages were 19 and 81 years respectively. Age distribution of the cancer patients was left skewed with median age of 54 years and interquartile range (IQR) = [62 (third quartile Q3) – 45 (first quartile Q1)] = 17 years.

Since the study was carried out in adult patients above 18 years, 162 (81.8%) were married, 17 (8.6%) single and 19 (9.6%) widowed. Majority of the patients, 136 (69%), were from rural area and the rest 62 (31%) were from urban area as per their permanent residence status. Out of total patients, 77 (39%) were of upper caste. Disadvantaged non-dalit terai caste were 3 (1.5%), dalit 10 (5%), relatively disadvantaged janajatis 50 (25%), relatively advantaged janajatis 54 (27%) and religious minorities 4 (2%).

Regarding literacy status, 119 (60%) of the patients

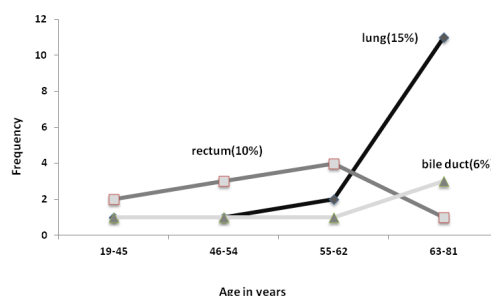
were literate and the rest 79 (40%) illiterate. Among the literates, majority had completed secondary education, followed by primary and higher secondary. When their socioeconomic status was assessed, none of them were from the upper socio economic class. Majority 105 (53%) was from the upper lower class, followed by lower middle class 78 (39%), lower class 11 (5%) and upper middle class 4 (2%) respectively.

In males, out of total 101 cases, 36 cases were malignant neoplasms of digestive organs (35.6%). This was followed by malignant neoplasms of respiratory and intrathoracic organs with 17 cases (16.8%). Third common cancer with 14 cases (13.9%) was of malignant neoplasms of lymphoid, haematopoietic and related tissue (Table 1).

Table 1: ICD classification of cancer and their respective occurrence in males

Types of Cancer	ICD Codes	Frequency	Percent
Malignant neoplasms of lip, oral cavity and pharynx	C00-C14	7	6.9%
Malignant neoplasms of digestive organs	C15-C26	36	35.6%
Malignant neoplasms of respiratory and intrathoracic organs	C30-C39	17	16.8%
Malignant neoplasms of bone and articular cartilage	C40-C41	10	9.9%
Malignant neoplasms of male genital organs	C43-C44	1	1%
Malignant neoplasms of thyroid and other endocrine glands	C73-C75	1	1%
Melanoma and other malignant neoplasms of skin	C43-C44	1	1%
Malignant neoplasms of mesothelial and soft tissue	C45-C49	7	6.9%
Malignant neoplasms of urinary tract	C64-C68	6	5.9%
Malignant neoplasms of eye, brain and other parts of central nervous system	C69-C72	1	1%
Malignant neoplasms of lymphoid, haematopoietic and related tissue	C81-C96	14	13.9%
Total		101	100

Fig 1: Age distribution of major cancers in males



When cancers from individual sites were considered, lung cancer was the most common cancer in males 15 (15%), followed by cancer of rectum 10 (10%) and cancer of bile duct 6 (6%). Age classification is done according to the quartile values, Q1= 45 years, Median = 54 years, Q3 = 62 years. The lowest and highest age of cancer patients in this study are 19 and 81 years respectively (Fig 1).

In case of females, malignant neoplasm of female genital organs were the most frequent type of cancers followed by malignant neoplasm of digestive organs and malignant neoplasm of breast (Table 1). Among individual cancers, breast cancer was the most common cancer in females 22 (23%), followed by cancer of ovary 13 (13%) and cancer of cervix 12 (12%) (Fig 2).

Table 2: ICD classification of cancer and their respective occurrence in females

Types of Cancer	ICD Codes	Frequency	Percent
Malignant neoplasm of lip, oral cavity and pharynx	C00-C14	3	3.1%
Malignant neoplasm of digestive organs	C15-C26	23	23.7%
Malignant neoplasm of respiratory and intra-thoracic organs	C30-C39	7	7.2%
Malignant neoplasm of mesothelial and soft tissue	C45-C49	1	1%
Malignant neoplasm of breast	C50	22	22.7%
Malignant neoplasm of female genital organs	C51-C58	30	30.9%
Malignant neoplasm of urinary tract	C64-C68	2	2.1%
Malignant neoplasm of eye, brain and other parts of central nervous system	C69-C72	2	2.1%
Malignant neoplasm of lymphoid, hematopoietic and related tissue	C81-C96	7	7.2%
Total		97	100

Fig 2: Age distribution of major cancers in females

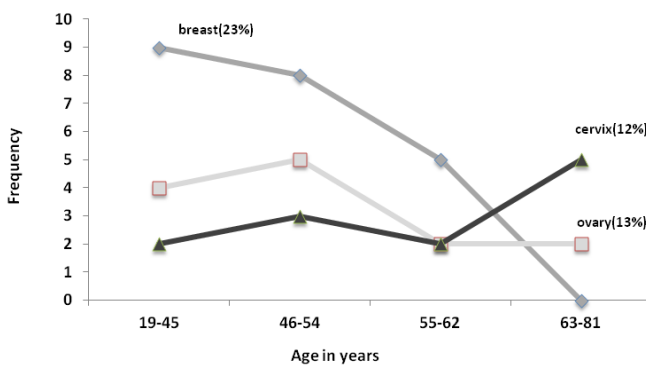
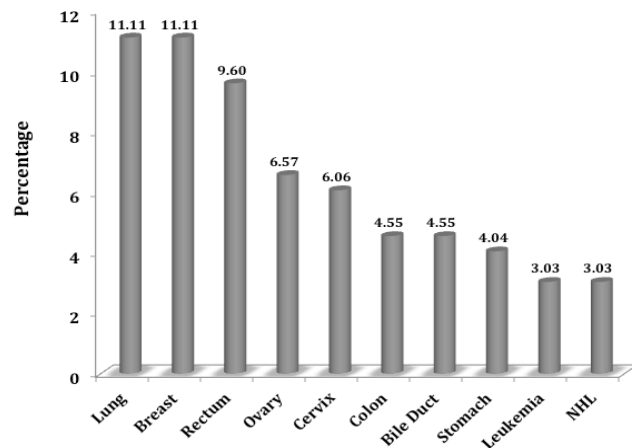


Fig 3: Top 10 cancers in both sexes



When 198 cancer patients of both sexes were considered, cancers of lung, breast, rectum, ovary and cervix were the most frequent cancers respectively (Fig 3).

DISCUSSION

Demographic characteristics of the study subjects include sex ratio of 1.04, age range of 62 years (81 - 19) and median age of 55 years. So cancer was more commonly seen in advanced age group though the types of cancer varied with age and sex. Binu VS *et al* in a study from Manipal College of Medical sciences, Nepal reported that out of total 957 cancer cases, 51.8% were males and 48.2% females with male to female ratio 1.1 : 1. The median age of males and females were 63 and 60 years respectively⁴. On contrary, El Helal TA *et al* reported in a study from Jordan that male to female ratio was 1.5 : 1; the median age for males was 43 years and for females it was 45 years⁵.

According to ICD classification, this study found 36 (35.6%) cases were malignant neoplasm of digestive organs, followed by malignant neoplasm of respiratory and intra-thoracic organs with 17 cases (16.8%) among males. Third common cancer with 14 cases (13.9%) was of malignant neoplasm of lymphoid, hematopoietic and related tissue. In case of female, malignant neoplasm of female genital organs (30.9%) were the most frequent type of cancers followed by malignant neoplasm of digestive organs (23.7%) and malignant neoplasm of breast (22.7%).

A study from Western Nepal found that among males, 33.1% of all cancers were in the respiratory system,

followed by digestive organ cancers (23.2%). Among females, 28.4% cancers were related to the reproductive system, 22.8% to the respiratory system and 14.1% to digestive organs⁴. This study found that cancer of lung, rectum and bile duct were more frequent in males in contrary to that of breast, ovary and cervix in females. In males, cancers of lung and bile duct were seen less in younger and middle age group but more in older age group. In case of rectal cancer, patients from younger and middle age were more affected while it was seen less in older patients. Breast cancer was found more in younger age group and less in older patients. Cervical cancer was just the opposite with older people more affected. Number of ovarian cancer increased from younger age to adult and again decreased in older age group. Pradhananga KK *et al* found that the most common site in males was the lung, followed by the oral cavity and stomach; while the first three in females were cervix uteri, breast and lung. Shifts in the main cancers were noted with different ages, with leukemias and lymphomas in young individuals replaced by lung, oral and stomach in middle age and lung, stomach and larynx in the oldest category of males. In females the shift was to breast in young women, then cervix in middle age followed by lung in the very aged. There was also variation between hospitals, but this appeared largely due to the differences in the therapeutic modalities available in different institutions². In similar studies, lung cancer in males and breast cancer in females are the most common cancers^{6,7,8}.

CONCLUSION

Cancer is a global disease. It is an important emerging non-communicable disease in developed as well as developing countries. This study showed cancer is equally common in both sexes, more in advanced age group and people from lower and middle socio-economic classes are more affected. Cancer of lung, rectum and bile duct in males, while cancers of breast, ovary and cervix in females are the more frequent types; further varying with different age. This emphasizes prioritizing the health promotive activities against cancer in the general population.

Conflict of Interest

None

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