

Full Length Research Paper

Cancer profile in B.P. Koirala institute of health sciences, Dharan, Nepal: A five-year study

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This study was done to find the most common cancers diagnosed as malignant among males and females attending this hospital. All histopathology and cytopathology cases reported as malignant from January 2005 to Dec 2009 were included in the study. A total of 3491 patients were diagnosed with malignancy. 1693(48.5%) were males and 1798(51.5%) were females with male to female ratio of 1.062. The top five districts with populations vulnerable to malignant conditions were Sunsari (893), Morang (598), Jhapa (512), Saptari (168) and Ilam (162). 225 patients were from India. Most patients (782) were 51-60 years of age. Males (398) were predominantly from 61-70 years age group while females (432) were mostly from 51-60 years age group. The most common cancers in females were of breast, cervix and gall bladder in descending order. In males the most common were hematolymphoid, gastric and lung malignancies.

Keywords: cancers, breast, cervix, gall bladder, hematolymphoid, gastric, lung malignancies

INTRODUCTION

Cancer is the most dreaded disease in the world. The incidence of cancer is increasing with each year and it is attributed to the changes in lifestyle and increase in life expectancy. (1,2,3,) Few studies related to cancers among populations from the eastern region of Nepal are available. Knowledge in this area can help to identify the burden of the disease, likely factors as well as assist cancer control programs.

The incidence and cancer profile varies in developed and developing countries. Incidence is high in developed countries because of the affluent society, diet and lifestyle. (1,4).

Objectives

1. To find the five top most common cancers diagnosed among males attending this hospital based on cases at

the Department of Pathology and Medical Records Section.

2. To find the five most common cancers diagnosed as malignant among females attending this hospital based on cases at the Department of Pathology and Medical Records Section.

MATERIALS AND METHODS

A 5-year hospital registry-based retrospective study from January 2005 to December 2009 was undertaken in the Department of Pathology and Medical Records Section of B.P.Koirala Institute of Health Sciences, Dharan, Nepal. It catered mainly to the population of Sunsari district and also to the people of neighbouring districts like Dhankuta, Terhathum, Morang, Jhapa, Siraha and Saptari of the Eastern Nepal.

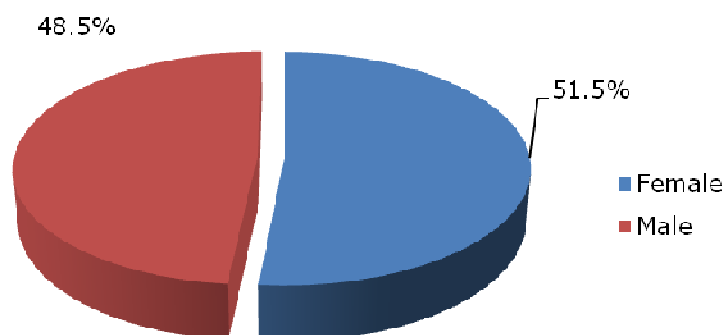


Figure 1. Showing gender distribution

Table 1. Showing gender and frequency of malignant neoplasm.

GENDER	FREQUENCY	PERCENTAGE (%)
FEMALE	1798	51.5
MALE	1693	48.5
Total	3491	100.0

All cancer cases reported in the Department of Pathology by histopathology, cytopathology and haematology (except cancer diagnosed by peripheral smear findings) was included in this study.

Multiple specimens of a patient, especially where FNAC was followed by histopathology would be considered as one case. Only those FNAC cases not followed by a histopathological study would be counted separately.

The information of each case regarding age, sex, occupation, residential area and diagnosis etc were retrieved from the case sheets in the department of pathology and hospital records section. Ethical clearance for conducting the study was obtained from the Ethical clearance committee of the institute.

Inclusion criteria

All cancer cases reported during the period from January 2005 to December 2009 in the Department of Pathology would be included in this study.

Exclusion criteria

Malignancy diagnosed by peripheral smear findings.

Statistical analysis

Descriptive statistical analyses were done. The cases were grouped according to age, sex and top five common

cancers. These findings were compared with similar studies. The clinical follow-up of the cases was not considered. The clinico histopathological correlates was done by using the Software SPSS, Version 12.0

RESULTS

Out of 34,206 patients, 3491(10.71%) patients were diagnosed with malignant neoplasm. Among which 1693 (48.5%) were males and 1798 (51.5%) were females. The male: female ratio was 0.9:1 as shown in figure 1 and table 1 above:

The top five districts with populations vulnerable to malignant conditions were Sunsari (893) followed by Morang (598), Jhapa (512), Saptari (168) and Ilam (162) respectively as shown in figure 2 and table 2 below. Total of 225 patient were from neighbouring country India.

The most common cancers in females were of breast in 253 patients followed by cervix in 172 patients, gall bladder in 128 patients, thyroid in 109 patients and ovary in 98 patients. These are shown below in figure 3 and table 3:

In males, the most common malignancy were hematolymphoid in origin with 103 patients followed by lung malignancies with 98 patients, gastric malignancies with 93 patients, urinary bladder malignancies with 73 patients and liver malignancies with 43 patients as shown in figure 4 and table 4 below:

The figure and table number 5 below shows the graphic representation of age distribution of the patients with malignancies. Most of the patients were from 51-60 years of age group. Out of which, the males were predominantly from 61-70 years of age group while

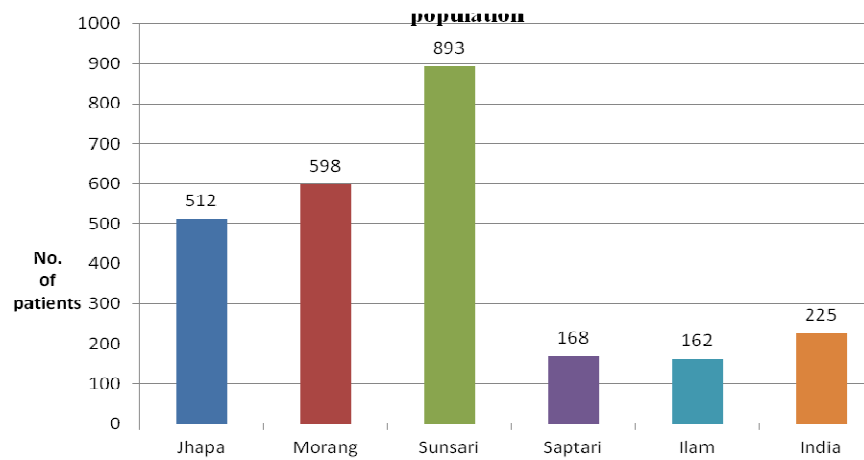


Figure 2. Commonest districts, regions with cancer affected population.

Table 2: Showing commonest districts/regions with malignancy

DISTRICT	NO. OF PATIENTS
JHAPA	512
MORANG	598
SUNSARI	893
SAPTARI	168
ILAM	162
INDIA	225

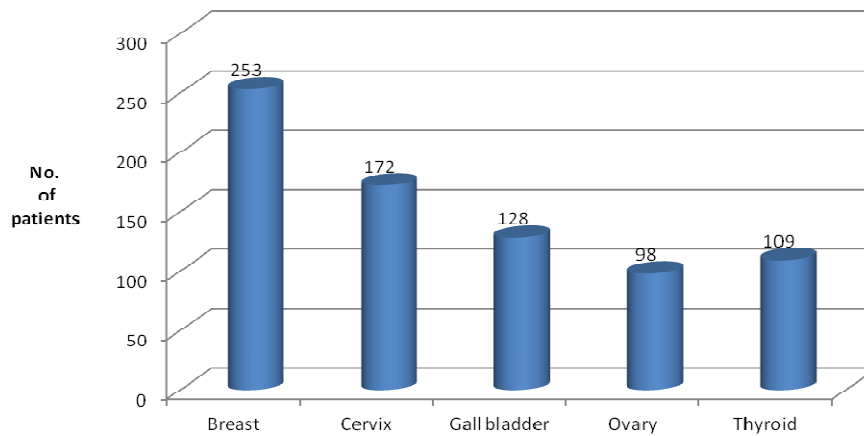


Figure 3. Commonest cancer in female

Table 3: Showing commonest cancer sites of female patients

CANCER SITES	NO. OF FEMALE PATIENTS
BREAST	253
CERVIX	172
GALLBLADDER	128
OVARY	98
THYROID	109

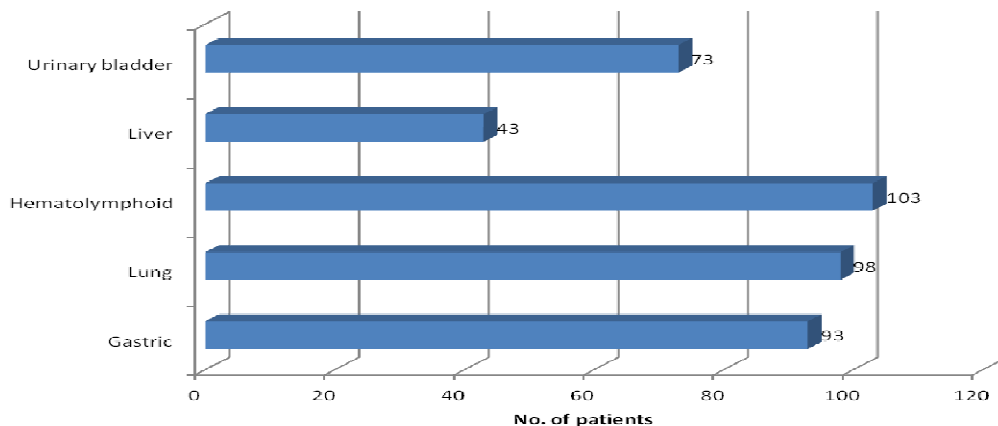


Figure 4. Commonest cancer in male

Table 4: Showing commonest cancer sites of female patients

CANCER SITES	NO.OF MALE PATIENTS
GASTRIC	93
LUNG	98
HEMATOLYMPHOID	103
LIVER	43
URINARY BLADDER	73

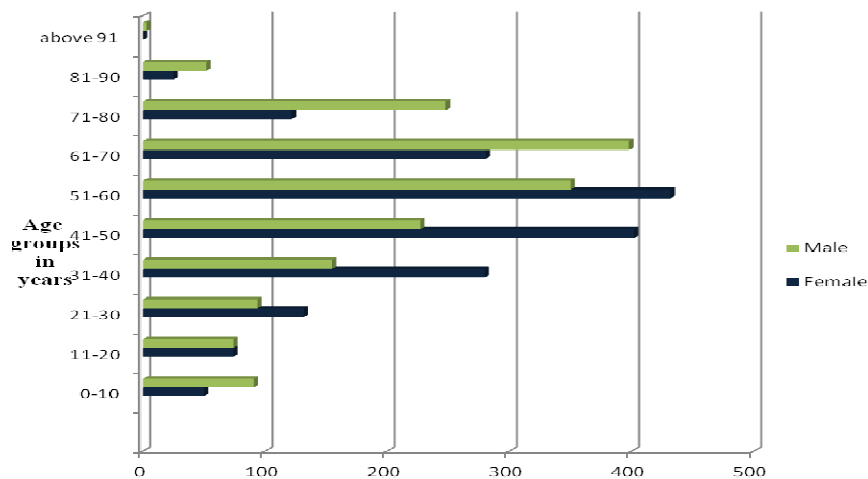


Figure 5. Age distribution

Table 5: Showing different age group distribution of cancer patients

AGE(yrs) IN GROUPS	FEMALE	MALE	TOTAL
0-10	50	91	141
11-20	74	74	148
21-30	132	94	226
31-40	280	155	435
41-50	402	227	629
51-60	432	350	782
61-70	281	398	679
71-80	122	248	370
81-90	25	52	77
above 91	0	3	3
TOTAL	1798	1692	3491

females were mostly from 51-60 years of age group.

DISCUSSION

A similar study by Gaur et al. (2006) at Dehradun, India revealed a higher male to female ratio of 1.7:1 than that of this study which is 0.9:1. The common cancers for women were the same as that shown by this study whereas lung and larynx cancers were more common than hematolymphoid cancers.¹

Another recent study done by Kalyani et al. (2010) et al conducted over 10 years at Kolar, India showed a lower male to female ratio of 0.7: 1. Oral cancers predominated in both genders. Upper gastrointestinal cancers were the next common among males whereas cervical cancers predominated over breast cancers in females.²

These differences with our study may reflect not just environmental and genetic variabilities but also differences in health service utilisation by the affected population. Cancer are predominantly a disease of middle and old age. In a study done by Kalyani et al (2010) the peak age of occurrence of cancer was the seventh decade in males and fifth decade in females. Similarly, the male female ratio was 0.7:1, showing a female preponderance. In that study, the commonest site of cancer was the oral cavity, which predominated in both genders and histologically almost all were squamous cell carcinoma.

Likewise, HPV is well associated with carcinoma of the cervix. WHO has recommended screening of every woman between 35 and 40 years of age.¹² Regular screening programs and Pap smears help in the early detection of carcinoma of the cervix.⁷ In a study done by Kalyani R et al², among 19,615 cases of histopathology and FNAC reported, a total of 2744 (13.98%) were malignant, of which 1200 were males and 1544 females, with male: female ratio of 0.7: 1, indicating female preponderance as that of our study. Among all the cancers, cancer of the oral cavity was the leading cancer in both sexes (total n = 814 cases) whereas, hematolymphoid in males and breast carcinoma in females were commonest in our study. Among males, the maximum cases were in the age group of 61-69 years (n = 398) and in females 51-59 years (n = 432) in our study.

The top five sites most frequently involved by cancer in males were hematolymphoid, lung, gastric, urinary bladder and liver in our study. But, oral cavity, stomach, esophagus, bone and NHL were the top five sites most frequently involved by cancer in males in the study conducted by Kalyani et al. (2010). Likewise, breast, cervix, gallbladder, thyroid and ovary were among top five most common sites within females in our study. However, the top five sites in females of their study were oral cavity, cervix, breast, stomach and esophagus. According to their study, from the hospital records it was observed that a majority of the patients from both

genders, especially those cases of oral cancers, had a habit of tobacco chewing and use of alcohol.

However, the risk and etiological factors were not studied in our study. Cancers of male reproductive organs especially prostate cancer and penile cancer occupied a place among the top ten cancers in the study done by (Kalyani et al 2010). Prostate cancers are common in developed countries with high calorie diet, physical inactivity, black men, and it is common in old age.^{7,1} Life time risk of dying from prostate cancer in males is approximately 3%.⁷ Prostate cancer forms one of the top ten cancers in the studies of Thiruvanthapuram, Kolkata, Dehradun, and Eastern Rajasthan.^{6,1,13} Regarding the penile cancer, early circumcision decreases the risk, whereas, smegma, phimosis, and trauma increases the risk.^{7,1} Among the cancers of female reproductive organs following cervix and breast, ovaries take seventh position in the study of Kalyani et al. (2010).

Likewise, following breast and cervix, ovaries take fifth position in our study. Similarly, liver and laryngeal cancers were more common in males. Our study showed about the liver cancer in fifth position in male patients. However, it can be attributed to the increased use of alcohol, smoking, and Hepatitis B virus (HBV) infection.⁷ Bladder cancer ranks tenth in that study and was common in males. Likewise, urinary bladder cancer in our study was in fourth position of commonest sites for male patients. Similarly rectal cancer took ninth place among females in the study done by Kalyani et al. (2010).

It is one among the top ten cancers in some South Karnataka districts, Salem, Thiruvanthapuram, and Eastern Rajasthan, where females predominate, whereas, in Srinagar and Ludhiana males predominate.^{6,3,10,11} It is more common in developed countries where there is an increased intake of fat, refined carbohydrates, and animal proteins, with low physical activity and low intake of fruits and vegetables.⁷

CONCLUSION

In the present study, in females-carcinoma of breast was predominant followed by carcinoma of cervix, gall bladder, thyroid and ovary. Likewise, in males-hematolymphoid malignancy was predominated following lung, gastric, urinary bladder and liver. This study reveals a large pocket of cancer patients around BPKIHS and may only represent the tip of the iceberg. Cancer screening programs (national/local) may bring forth a larger group. Data regarding cancers are generally used to identify disease burden, distribution and sometimes to establish causality or association. This comprises the analytic aspect of oncology. Implementation aspects like resource allocation are largely forgotten.

Promoting BPKIHS as a cancer centre and adequate resource allocation for this purpose is only logical due to its proximity to this population.

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