

Major Cancer Types in Females of Terai Region of Nepal

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Abstract:- Cancer is a group of diseases which can grow in any part of body and still no definite cause is known. Primary focus of the study was to explore the prevalence of cancers in females of Terai region of Nepal. The study was conducted in BP Koirala Memorial Cancer Hospital, Bharatpur, Chitwan and adapted quantitative research design. The data was collected from randomly selected 800 hospital cancer patients from year 2009 to 2013. The study was non experimental, descriptive, exploratory and cross-sectional research design. Findings suggested that by occupation lung cancer was highest followed by colon/colorectal, gastric, breast, oral/head and neck, cervix/uterus, other cancer and liver/gall bladder/pancreas cancers respectively among household people. Cancer prevalence was high among 41 and above age group. Cancer was more prevalent in Janajati (Ethnic community) and female of the region suffered with cervix uterus, breast, oral, head and neck cancers. Awareness program and further investigations required to lower cancer prevalence among females of this region.

Keywords:- Cancer types, Terai region, Females, Nepal.

I. INTRODUCTION

Cancer is a group of diseases of which can grow in any part of body and still no definite cause is known. There are various risk associated with cancer risk and related mortality such as high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use. The usual character of cancer is growth of abnormal cells without limited boundaries and capability to invade surrounding cells as well as spread to distant organs of body called metastasis. Metastases are a major cause of death from cancer (Fact sheet, 2017). Cancer is a major cause of morbidity and mortality, with approximately 14 million new cases and 8 million cancer-related deaths in 2012, affecting populations worldwide (World Cancer Report, 2014). Thun et al mentioned an estimation of cancer problem rise worldwide around 26 million new cancer cases causing 17 million cancer deaths per year by the year 2030 (Thun, DeLancey, Center, Jemal, & Ward, 2009). Cancer Report showed high cancer related morbidity as estimated 1.7 million new cases of cancer cases every year in the South East Asia Region. Common cancers among males are lung cancers most common followed by oral cancer while among females; breast and cervix uteri cancers have the highest incidence according to the study (World Health Organization, South East Asia Region, 2011).

World Health Statistics 2012, cancer accounts for the second largest proportion of non-communicable disease deaths (21%) (Khan, et al., 2013). More than two thirds of all cancer deaths occur in low and middle-income countries with higher prevalence of lung, breast, colorectal, stomach and liver cancers. Lung Oral, gastric, breast, cervix etc. are some of the major cancer problem worldwide. and also in Nepal. According to the studies, approximately 8,000-10,000 new cancer patients per year in Nepal. Females are more affected by cancer than males. Cancer of the lung, uterine cervix, head and neck, breast and gastric are the most common types of cancer in Nepal (Mishra, et al., 2015). There are various factors such as economical, geographical and educational, less awareness, geographical difficulties, transportation, poverty and inadequate preventive and curative care facilities etc. in increasing cancer burden in Nepal. In other hand major cancer in female of Nepal is quite high. From the study of Poudel et al major cancers in males were lung cancer (17.5%), stomach cancer (7.6 %) and larynx cancer (5.4%) and that in females were cervix (18.9 %) followed by breast (15.6 %) and lung (10.2%) (Poudel, Huang, Neupane, Steel, & Poudel, Hospital-Based Cancer Incidence in Nepal from 2010 to 2013, 2017). From study and experience various problems found in family such as broken family, economic loss, education and career development. All these facts indicate the immense need of this type of researches to minimize the burden of cancer. The fact further supported by Jemal et al “Cancer survival tends to be poorer in developing countries, most likely because of a combination of a late stage at diagnosis and limited access to timely and standard treatment (Jemal, et al., 2011);

II. OBJECTIVE OF THE STUDY

The objective of the study was to explore prevailing major types of cancer in females of Terai region of Nepal.

III. MATERIALS AND METHODS

The data was collected in the BP Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal. The study design was quantitative, descriptive and cross sectional. The data was collected from records of 800 cancer diagnosed patients. The records were analyzed using purposively prepared checklist to gather relevant information from hospital records. The sample of 160 patients' record each year was selected by simple random sampling from year 2009 to 2013 AD. For the study purpose the country was divided into two regions namely Hill and Terai, divide by north to the Chure mountain range which runs east to west of Nepal. North to the Chure range was Hill

and south was Terai. The study data presented cross tables. Phone interview as also conducted to gather information. Similarly observational study was also included.

IV. RESULTS AND DISCUSSIONS

Different factors are associated with cancer types. In this regards various social, familial and other factors were analyzed and presented in the study. The cancer types with respect to the occupational factors is presented in Table 1.

Occupation	Major Category							
	Oral, Head and Neck	Lung	Colon/ Colorectal	Stomach / Gastric	Breast	Liver / Pancreas / Gall Bladder	Cervix / Uterus	Other
Household	42.0%	53.4%	47.1%	47.0%	46.2%	17.4%	35.8%	28.1%
Office worker	2.7%	12.3%	11.8%	0.0%	5.1%	6.5%	10.0%	10.0%
Agriculture	16.7%	11.0%	8.8%	13.6%	23.1%	43.5%	21.7%	32.5%
Student	0.0%	4.1%	0.0%	1.5%	1.3%	0.0%	2.0%	6.1%
Labor	32.3%	15.8%	32.4%	37.9%	19.2%	15.2%	21.7%	15.1%
Other (retired, politician)	6.0%	3.4%	0.0%	0.0%	5.1%	17.4%	5.8%	10.6%

Table 1. Cancer types based on Occupation
Source: Field survey, 2015

The above table showed cancer found in HH (household) worker were Oral, head and neck cancer was found in 42%, lung 53%, colon and colorectal 47%, Stomach (Gastric) 47%, Breast 46.2%, Liver, Pancreas, gall bladder 17.4%, Cervix, Uterus 35.8%, other (blood, Eye, bone, scrotum, skin etc.) 28.1%. Similarly lung cancer was high 12.3% among office workers followed by colon/colorectal cancer 11.8%, cervix and other cancer 10% each, oral, head and neck 2.7%, Breast cancer 5.1%, Gall bladder, Pancreas, liver in 6.5%. Cancer among agriculturist were oral, head, neck 16.7%, lung 11%, colon, colorectal 8.8%, stomach 13.6%, breast 23.1%, liver, pancreas, gall bladder 43.5%, Cervix, uterus 21.7%, others 32.5%. However lung cancer 4.1% Gastric 1.5%, breast 1.3%, Cervix uterus in 2%, other 6.1% among the students. Cancer in labors' were oral head, neck 32.3%, lung 15.8%, colon colorectal 32.4%, Gastric 37.4%, breast 19.2%, liver, gall bladder, pancreas 15.2%, cervix uterus 21.7%, other 15.1%. Other group of occupation (retired, politician, non working etc.) had oral head and neck 6%, lung 3.4%, breast 5.1%, liver, gall bladder, pancreas 17.4%, cervix uterus 5.8%, other cancers 10.6%.

It shows that lung cancer was highest followed by colon/colorectal, gastric, breast, oral/head and neck, cervix/uterus, other cancer and liver/gall bladder/pancreas cancers respectively among household people. Office workers found to be low in all cancers but among them lung cancer was highest. Similar results were shown in study of Daniel et al. that sedentary lifestyle had positive relation to lung cancer

and increased risk of colon and endometrial cancer (Daniela Schmid & F. Leitzmann, 2014).

Stomach (gastric) cancer was highest among labor. In their study on the risk factors of occupational and socioeconomic factors showed that manual workers and farmers were at higher risk for gastric cancer; cement and mineral dust were considered the most important occupational risk factors for gastric cancer (Yusefi, Lankarani, Bastani, Radinmanesh, & Kavosi, 2018).

Sex	Major Category							
	Oral Head and Neck	Lung	Colon / Colorectal	Stomach / Gastric	Breast	Liver / Pancreas / Gall Bladder	Cervix / Uterus	Other
Female	16.4%	8.6%	4.6%	5.6%	18.3%	5.9%	28.2%	12.4%

Table 2. Cancer Types Based on Sex in Terai region
Source: Field survey, 2015

Oral cancer in female of Terai region found oral, Head and neck cancer 16.4%, lung 8.6%, stomach 5.6%, breast 18.3%, liver, pancreas, gall bladder 5.9%, Cervix, uterus 28.2% and other cancers 12.4%. In Terai Cervix and uterus cancers were higher followed by breast and oral head and neck

cancer. Similar results were shown in the findings of Pradhananga et al. which showed in females' cervix uteri and breast were high (Pradhananga, Baral, & Shrestha, 2009). In the study of Piya and Acharya most common cancers in

females were cervix uteri, breasts, and lungs cancers in Nepal (Piya & Acharya, 2012).

Age Group	Major Category							
	Oral, Head and Neck	Lung	Colon / Colorectal	Stomach / Gastric	Breast	Liver / Pancreas / Gall Bladder	Cervix/ Uterus	Other (leukemia, skin, vulva etc.)
20 Below	2.7%	2.1%	2.9%	0.0%	0.0%	4.3%	2.5%	4.4%
20 to 40	9.3%	13.7%	26.5%	15.2%	17.9%	28.3%	12.5%	26.2%
41 and above	88.0%	84.2%	70.6%	84.8%	82.1%	67.4%	85.0%	69.4%

Table 3:- Cancer Type Distribution Based on Age Group Field Survey, 2015

From above table 3, high prevalence was other (skin, blood cancers, vulva etc.) cancers 4.4%, followed by liver pancreas and gall bladder cancer 4.3 in age group under 20 years. Lung cancer in this group was less but most of them were metastatic. Similarly data showed that liver gall bladder and pancreas cancer was highest in 20 to 40 years age group by 28.3% whereas the lowest was oral, head and neck 9.3%. In the study of Kakkar et al. found Head and neck (32.03%) and breast cancer (14.2%) found to be the most common cancers in young adults (aged 15-39 years) of North India (Kakkar, Gupta, Sharma, Agarwal, & Kaur, 2017). In the Nepalese context, the head and neck cancer prevalence is low (12%) up to age 40 years people but breast cancer was found high (17.9%) as the finding of Kakkar et al. study of North India.

The above table 4 showed oral cancer 58%, lung cancer 39.1%, colon and colorectal cancer 29.4%, Stomach cancer 51.5%, breast cancer 55.1%, liver/Pancreas/gall bladder cancer 60%, cervix and uterus cancer 52.5% and other cancers (skin, eye, bone and connective tissue etc.) 62.5%. In the research of Pradhananga et al. mentioned that “the first three cancers in females were cervix uteri, breast and lung” (Pradhananga, Baral, & Shrestha, 2009). Piya and Acharya also mentioned from the hospital registry based research that the most common cancer in males is lung cancer, followed by oral cavity and stomach while the most common cancer in females are cancer of the cervix uteri, breasts, and lungs in the country (Piya & Acharya, 2012). From the above table the findings showed there were more oral and oral cavity cancer followed lungs and other cancers. The findings suggested that oral cancer found more in Terai region.

Oral cancer among the group age 41 and above was highest 88% whereas liver, Gall bladder, pancreas cancers were lowest by 67.4%. The above table showed that the prevalence of all types of cancer were significantly high among this group. It suggests that as the age advances the cancer prevalence is increasing so further investigation is required to explore the causative factors associated with the growth of age. According to the most recent statistical data from NCI's Surveillance, Epidemiology, and End Results program, the median age of a cancer diagnosis is 66 years (National Cancer Institute, 2015).

Region	Major Category								Total
	Oral, Head and Neck	Lung	Colon / Colorectal	Stomach / Gastric	Breast	Liver / Pancreas / Gall Bladder	Cervix / Uterus	Other	
Terai	58.0%	39.7%	29.4%	51.5%	55.1%	60.9%	52.5%	62.5%	52.9%

Table 4:- Cancer types based on region Source: Field survey, 2015

Caste	Major Category								Total
	Oral, Head and Neck	Lung	Colon/Colorectal	Stomach / Gastric	Breast	Liver/ Pancreas /Gall Bladder	Cervix/ Uterus	Other	
Brahmin	18.7%	30.1%	20.6%	15.2%	20.5%	19.6%	16.7%	25.6%	21.9%
Chhetri	20.0%	21.2%	23.5%	16.7%	12.8%	19.6%	20.8%	21.9%	19.9%
Janajati(ethnic community)	39.3%	30.1%	44.1%	39.4%	37.2%	23.9%	36.7%	30.6%	34.6%
Dalit (lowly caste)	6.0%	5.5%	5.9%	13.6%	7.7%	15.2%	5.8%	6.9%	7.4%
Madhesi	13.3%	7.5%	5.9%	15.2%	19.2%	17.4%	16.7%	13.8%	13.5%
Muslim	1.3%	0.7%	0.0%	0.0%	1.3%	0.0%	0.8%	0.0%	0.6%
Other	1.3%	4.8%	0.0%	0.0%	1.3%	4.3%	2.5%	1.2%	2.1%

Table 5. Cancer distribution based on caste

Source: Field survey, 2015

The above table 5 showed total number of cancer was higher (34.6%) in Janajati (ethnic community) followed by Brahmin (21.9%) and Chhetri (19.9%). The cancer was lowest in Musalman (0.6%). The population distribution of Census 2011 of Nepal shows that 48.4% people are living in Terai region where Madhesi and Muslim communities are high. But the result of this study shows the comparatively low prevalence of different types of cancer among the Madhesi and Muslim women than the other Brahamin, Chhetri and Janjati communities. It may be caused by low access on health facilities and lack of awareness and practices of health seeking behavior.

The caste wise prevalence of different cancer shows that lung cancer was highest (30.1%) and stomach/Gastric was lowest (15.2%) among Brahamin. Similarly, Colon/Colorectal cancer was high (23.5%) and Breast cancer was lowest (12.8%) among the Chhetri community. The data of Janjati shows that the prevalence of Colon / Colorectal cancer was highest (44.1%) and Liver / Pancreas / Gall Bladder cancer was lowest (23.9%). Among the Dalit community, Liver / Pancreas / Gall Bladder was high (15.2%) and lung cancer was lowest (5.5%). In Madhesi community, Breast cancer was highest (19.2%) and Colon/Colorectal was lowest (5.9%). The Muslim community reported that Breast and oral (head and neck) cancer was highest (1.3%) followed by Cervix/Uterus (0.8%), and Lung (0.7%). The other community also reported that 4.8% had lung cancer and only 1.2% other types of cancer.

V. CONCLUSION

The study described about the cancer types found in females of Terai region of Nepal. Lung cancer was highest followed by colon/colorectal, gastric, breast, oral/head and neck, cervix/uterus in household patient. Similarly other cancers were and liver/gall bladder/pancreas cancers. Compared to other occupation, office workers found to be low in all cancers though lung cancer was highest. Stomach gastric cancer was highest among labor. Gender based analysis showed females of terai mostly suffered from cervix and

uterus cancers followed by breast, oral head and neck cancers. Cancer prevalence was low under 20 years of age which increased with the advancing of age and much higher above 41 years age group. Based on cancer types, other cancers (skin, eye, bone and connective tissue etc.) were highest followed by liver/Pancreas/gall bladder, oral, head and neck cancers, cervix uterus, stomach lung, colon and colorectal cancers respectively. The number of cancer was higher (34.6%) in Janajati (ethnic community) followed by Brahmin (21.9%) and Chhetri (19.9%) whereas it was lowest in Musalman (0.6%). But the result of this study shows the comparatively low prevalence of different types of cancer among the Madhesi and Muslim women than the other Brahamin, Chhetri and Janjati communities.

The analysis suggests that there is need of Cancer related awareness program and cancer specific service primarily focusing to female in this region. Research based on age and ageing practices are inevitable. Study on ethnic based cancer research is indicated. Research on lifestyle, health seeking behavior of female of Terai are other points required for further investigation.

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