



## Original Article

## Assessing the Burden of Cancer- A Five –Year Retrospective Study

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## ARTICLE INFO

## A B S T R A C T

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**Background and objective:** Nowadays more people suffering from cancer and also the incidence of cancer was increasing. The treatment of cancer was very expensive it will affect their family and also the nation. The main objective of the study was to evaluate the proportion of malignant neoplasm among the neoplasm cases and to find the different types of malignant neoplasm and also find case fatality rate due to neoplasm during the period from 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010 in a teaching hospital. **Materials and Methods:** This retrospective study was conducted in a teaching hospital among patients admitted with neoplasm. Data were collected from the medical records department which follows the guidelines of International Classification of Diseases (ICD)-10 coding.

**Results:** Out of 2376 neoplasm cases, 1003(42.21%) were males and 1373 (57.79%) were females. Neoplasm cases were more in the age group of 36-50 years. Of the neoplasm cases, 1086(45.7%) were malignant cases. Lung cancer was more predominant in males 67(6.68%) than females 9(0.66%). Case fatality of neoplasm was 117 (4.92%). It was more in males 82(8.18%) than females 35 (2.55%). Case fatality was more in the age group of above 50 years compared to the age group 36-50 years.

**Conclusion:** The study showed that most of malignant neoplasm was occurred in the digestive organs. And most of the deaths occurred due to malignant neoplasm of digestive organs. Most of the cancers should be curable at the earliest stages. Early detection camps will be helped for early detection.

**Key words:** Neoplasm, Cancer, Male, Female

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## 1. INTRODUCTION

Cancer is a major burden of disease in the worldwide but there are noticeable geographical changes occurred

it causes the incidence of disease in the specific region of body part. WHO reported that in each year 10 million people are diagnosed and above 6 million deaths occurred due to cancer and also mentioned that 22 million people are suffering from cancer.<sup>1</sup> According to Ferlay's study the incidence of cancer was 10.1 million and its mortality was 6.2 million and 22.4 million persons suffering from cancer in 2000.<sup>2</sup> And in another study its incidence was 13 million and deaths was 8 million in the worldwide.<sup>3</sup>

According to the report of a study mentioned that mortality of cancer was 635000 in India in 2008 and it was about 8% of the total deaths in the world and about 6% of the total deaths in India.<sup>3</sup> In India, it is one of the ten major leading causes of deaths. And it was about 3 million new cases were reported.<sup>3</sup> A study mentioned that the most common types of cancers are oral cavity, lungs, oesophagus and stomach among men and cervix, breast and oral cavity among women.<sup>3</sup> Report of a study mentioned that lung cancer was the most common type of cancer in the developing countries. Death due to lung cancer was the most common type of deaths among all cancer cases in the world.<sup>4</sup> Several studies reported that women with more physical exercise have less risk of developing breast cancer than other women.<sup>5</sup> In general it become a burden of people. The main purpose of the study was to evaluate the proportion of malignant neoplasm and to find the different types of cancers and also to find the case fatality rate due to neoplasm during the period from 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010 in a teaching hospital.

## 2. MATERIALS AND METHODS

The study was a retrospective study conducted on patients admitted in a teaching hospital with cancer 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010. The study population consists of hospitalized patients with neoplasm in the hospital during the period from 1<sup>st</sup> April 2005 to 31<sup>st</sup>

March 2010. Data collected from the Medical records department with the permission of Institutional ethical Committee. This department follows the guidelines of International Classification of Diseases (ICD)-10 coding. Z test is used for the comparing the proportions of two groups. Critical ratio (Z) = difference between proportions / standard error of difference between proportions. Formula for calculating Standard error of difference between proportions =  $\sqrt{(p_1q_1/n_1) + (p_2q_2/n_2)}$ . P<sub>1</sub> and P<sub>2</sub> are the proportions of two groups. According to the value of critical ratio (Z), P value is taken from the unit normal distribution table with cut off value is 0.05. If it is less than or equal to 0.05 mentioned that there is significant difference between proportions of two groups. Otherwise no significant difference occurred in the proportions of two groups. Analysis was done with the help of Microsoft excel.

## 3. RESULTS AND DISCUSSION

Out of 2376 neoplasm cases, 1003(42.21%) were males and 1373(57.79%) females. Of the neoplasm cases, proportion of malignant neoplasm was 1086(45.7%).

**Table 1: Age sex distribution of patients admitted with neoplasm in a teaching hospital from 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010**

Age	M	F	Total	P value
0-5	55(5.5%)	77(5.6%)	132(5.56%)	0.90
6-12	48(4.8%)	53(3.9%)	101(4.25%)	0.19
13-19	16(1.6%)	34(2.5%)	50(2.1%)	0.17
20-35	64(6.4%)	146(10.6%)	210(8.84%)	<0.001
36-50	150(15%)	546(39.8%)	696(29.29%)	<0.001
51-65	269(26.8%)	340(24.8%)	609(25.63%)	0.08
>65	401(40%)	177(12.9%)	578(24.33)	<0.001
Total	1003(100%)	1373(100%)	2376	

Neoplasm case was more occurred in the age group of 36-50 years. It was significantly more among females than males in the age group of 20-50 years. But in the age group of above 65 years, it was significantly more in males than females. shown in Table No.1.

Malignant neoplasm was more affected in the digestive organs. It was significantly more in males than females. shown in Table No.2.

Of the malignant neoplasm cases, 76(7.0%) was due to malignant neoplasm of bronchus and lungs, 32(2.95%) was due to malignant neoplasm of thyroid glands and 49(4.5%) was due to malignant neoplasm of brain.

**Table 2: Sex wise distribution of patients admitted with neoplasm during 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010**

Type of neoplasm	M	F	Total	P Value
Malignant neoplasm of lip, oral cavity and pharynx (C00-C14)	79(7.9%)	9(0.65%)	88(3.7%)	<0.001
Malignant neoplasm of digestive organs(C15-C26)	188(18.7%)	79(5.8%)	267(11.24%)	<0.001
Malignant neoplasm of respiratory and intra thoracic (C30-C39)	74(7.4%)	11(0.8%)	85(3.58%)	<0.001
Malignant neoplasm of bone and articular cartilage ( C40-C41)	7(0.7%)	0(0%)	7(0.29%)	-
Malignant neoplasms, skin (C43-C44)	7(0.7%)	4(0.29%)	11(0.46%)	0.16
Malignant neoplasm, connective and soft tissue (C45-C49)	11(1.1%)	4(0.29%)	15(0.63%)	0.01
Malignant neoplasm, breast and female genital organs ( C50-C58)	0(0%)	121(8.81%)	121(5.09%)	-
Malignant neoplasm of male genital organs (C60- C63)	125(12.5%)	0(0%)	125(5.26%)	-
Malignant neoplasm, urinary organs(C64-C68)	53(5.3%)	15(1%)	68(2.86%)	<0.001
Malignant neoplasm, eye, brain and central nervous system (C69-C72)	30(3%)	19(1.38%)	49(2.06%)	<0.001
Malignant neoplasm, endocrine glands and related structures (C73- C75)	13(1.3%)	24(1.75%)	37(1.58%)	0.44
Malignant neoplasm , secondary and ill-defined (C76-C80)	46(4.6%)	35(2.55%)	81(3.41%)	<0.001
Malignant neoplasm, stated or presumed to be primary, of lymphoid, hematopoietic and related tissue (C81- C96)	72(7.2%)	53(3.71%)	125(5.26%)	<0.001

In situ neoplasm (D00-D09)	2(0.2%)	5(0.35%)	7(0.29%)	0.47
Benign neoplasm(D10- D36)	245(24.4%)	960(67.2%)	1205(50.72%)	<0.001
Neoplasm of uncertain or unknown behaviour (D37- D48)	50(5%)	35(2.45%)	85(3.58%)	<0.001
Total	1003(100%)	1373(100%)	2376	

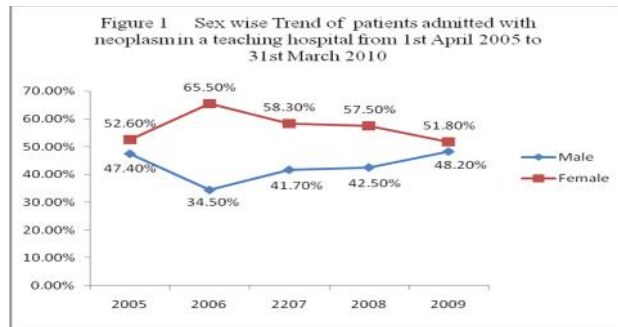
**Table 3: Age wise Case fatality of neoplasm among patients admitted in a teaching hospital during 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010**

Age group	No. of deaths	No. of Cases	Case fatality	P value
0-5	3	132	2.27	0.62
6-12	3	101	3	0.42
13-19	0	50	0	-
20-35	2	210	1	0.47
36-50	11	696	1.6	Reference
51-65	48	609	7.9	<0.001
>65	49	578	8.5	<0.001
Total	117	2376		

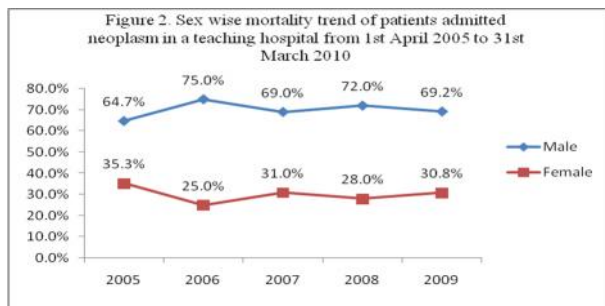
Of the Malignant neoplasm, breast and female genital organs, 47(38.84%) was due to malignant neoplasm of breast. Of the malignant neoplasm of respiratory and intra thoracic cases, 76(89.41%) was due to malignant neoplasm of bronchus and lungs. Of the malignant neoplasm, endocrine glands and related structures, 32(86.49%) was due to malignant neoplasm of thyroid glands. Of the malignant neoplasm, eye, brain and central nervous system, 100% was due to malignant neoplasm of brain. Of the malignant neoplasm of male genital organs 117(93.6%) was due to malignant neoplasm of prostate. Of the total malignant cases, 81(7.5%) was due to malignant neoplasm of stomach. Of the malignant neoplasm of digestive organs, 81(30.34%) was due malignant neoplasm of stomach. Proportion of Lung cancer cases 67(6.68%) among male neoplasm cases was significantly high compared to females 9(0.66%) (P <0.001).

Neoplasm was more in females than males. Female cases were occurred during 1<sup>st</sup> April 2006 to 31<sup>st</sup> March 2007 as Shown in Figure 1.

Of 2376 cases, 117 deaths were reported during the period from 1<sup>st</sup> April 2005 to 31<sup>st</sup> March 2010. Case fatality due to neoplasm during this period was 117(4.92%). Case fatality among males 82(8.18%) was significantly more compared to females 35 (2.55%). Case fatality due to malignant neoplasm was 109(10.04%).

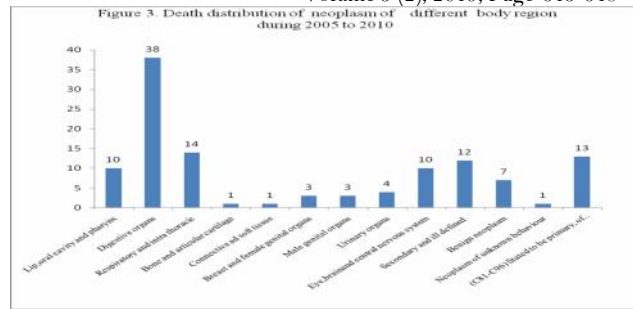


Case fatality was more in the age group of above 50 years compared to the age group 36-50 years. 93.2% of deaths was occurred in the age of above 36 years as Shown in Table No.3. Mortality was more in males in each year as Shown in Figure 2.



Neoplasm cases were more in females than males but deaths were more in males than females.

Most of the deaths were occurred due to neoplasm of digestive organs. Second leading cause of death was due to neoplasm of respiratory and intra thoracic. As shown in Figure 3.



Of the total deaths, deaths due to malignant neoplasm of stomach was 13(11.11%), lungs 14(11.97%), brain 10(8.55%), prostate was 2(1.71%) and breast 1(0.85%).

Dr Pankaj Chaturvedi's study mentioned that more than 5 lakhs of people died due to cancer in the every year in the country.<sup>3</sup> A study noticed that vegetarians have less risk of developing oral<sup>6</sup> and esophageal<sup>7</sup> cancers. Jain MG et.al's and Mills PK et.al's studies mentioned that pulses have reduced the occurrence of cancer.<sup>8, 9</sup> And another study reported that turmeric suppressed and destroyed the blood cancer cell, therefore it will reduce the risk of blood cancer.<sup>10</sup>

Binukumar Bhaskarapillai and et.al's study mentioned that 74% of all cancer cases were occurred in the age group of 50-74 years.<sup>11</sup> In the present study neoplasm cases were more occurred in the age group of above 50 years, 1187( 49.96%).

A study reported that 23 times more risk of developing lung cancer among male smokers than nonsmoker males.<sup>12</sup> A study reported that lung cancer is the most commonest cancer among males in the world (12.3% of all cancers).<sup>1</sup> World cancer report mentioned that lung cancer is higher in males.<sup>1</sup> In the present study also showed the same result that the proportion of lung cancer among male neoplasm cases 6.68% was more compared to females 0.66%.

WHO's study reported that breast cancer is 10.4% of all cancers and it is one of the major types of cancers in the world<sup>1</sup>. Its risk is less among vegetarians.<sup>7</sup> Another study reported that breast cancer incidence is increasing in India, it is about 80000 per year.

According to Saxena Sand et.al's study, 50% of increase occurred in its incidence from 1965 to 1985.<sup>13</sup> Another study mentioned that it was the most common type of cancer (10.2%) among women and the next leading cause was cervical cancer (17%).<sup>14</sup> Report of another study mentioned that the incidence rate of In situ breast cancer was increased 2.8% per year from 2005 to 2009.<sup>15</sup> In the present study 2% of the total neoplasm cases and 4.4% of the malignant neoplasm cases was due to breast cancer.

Report of a study mentioned that 1% of the incidence of all cancers was due to thyroid cancer in the United States in each year. Among the thyroid cancers papillary carcinomas (80%), follicular carcinomas (10%), modularly thyroid carcinomas (5-10%), anaplastic carcinomas (1-2%) and rare cases of primary thyroid lymphomas and primary thyroid sarcomas.<sup>16</sup> In the present study, of the total cases 32(1.35%) was due to malignant neoplasm of thyroid glands. Of the malignant neoplasm, endocrine glands and related structures, 86.49% was due to malignant neoplasm of thyroid glands.

A study reported that 1-2% of all cancers were due to brain tumour.<sup>17</sup> In the present study 4.5% of malignant neoplasm was due to malignant neoplasm of brain. Of the malignant neoplasm, eye, brain and central nervous system, 100% was due to malignant neoplasm of brain. Gajalakshmi and et.al's study reported that incidence of stomach cancer is decreasing in India compared to other countries and also mentioned that it was very high in Chennai.<sup>18</sup> In the present study 7.5% of the malignant cases was due to malignant neoplasm of stomach and of the malignant neoplasm of digestive organs, 30.34% was due malignant neoplasm of stomach.

According to Rajaram's study the risk of developing prostate cancer was more among non vegetarians than vegetarians.<sup>19</sup> In the present study, the malignant

neoplasm of male genital organs 3.6% was due to malignant neoplasm of prostate.

Report of a study mentioned that of the 556400 cancer deaths 71% was occurred in the age group of 30-69 years in 2010. In this age group, 8% of the male deaths and 12% of the female deaths was due to cancer.<sup>14</sup> Another study mentioned that 70% of the cancer deaths were occurred in 30-69 years of age in India. The same study mentioned that more than 80% of cancer deaths were occurred in the age group of above 15 years.<sup>20</sup> In the present study 93.2% of deaths were occurred in the age of above 36 years.

#### 4. CONCLUSION

In the present study the most common type of malignant neoplasm was affected in the digestive organs .Most of the deaths were occurred due to malignant neoplasm of digestive organs. Health awareness about the causative factors of cancer should be given to the community for reducing the amazing growth of cancer. Early detection camps should be helpful for detecting it at the earlier stage and will be able to start treatment at the earliest stage. Some patients can be cured completely with the early detection and treatment.

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