

**Profile of cancer patients admitted in a tertiary care hospital: A retrospective hospital record based study**

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**Abstract**

**Background:** In recent era due to epidemiological transition there is constant rise of admission of cancerpatients in tertiary care hospitals.

**Objectives:** An attempt was made to study the profile of cancerpatients and their outcomes at hospital discharge in Jorhat Medical College and Hospital, Jorhat

**Methods:** A retrospective hospital record based study wasconducted on the Cancer patients admitted in in eight departments of Jorhat Medical College and Hospital in last two years from May, 2016 to April 2018.

**Results:** The highest numbers of cancer patients were admitted in the department of Surgery(47%) and more were females(56.87%). Majority of patients (55%) admitted in ENT had suffered from Oro-esophageal cancer while patients admitted in Surgery (31%) suffered from breast cancer.Most of the patients received conservative treatment (78%) while 11% of the admitted cancer patients were operated and 8% received chemotherapy. We found 3% of the total patients were given a combination treatment of conservative, surgical and chemotherapy

**Conclusion:** Present study revealed that cancer is a major public health problem in this part of the country. Most of the cancer patients were treated conservatively as they were reported late in terminal stage leaving no scope for

further arrest or prevention. It may be highlighted that passable continuous hospital and community based screening of cancer patients with public healthawareness campaign in regard to suspected cancer risk factors prevention are much required intervention for prevention and control of cancer in this region.

**Keywords:** Cancer Profile, Jorhat, Prevention, Cancer Outcome, Tobacco, Oro-oesophageal.

**Introduction**

World is heading towards various types of Non-communicable diseases, which are also known as modern epidemics. The World Health Report 2004 has indicated that Non Communicable Diseases account for almost 60% of deaths and 47% of the global burden of disease. [1] Among these, Cancer is the second commonest cause of mortality in developed countries after cardiovascular disease accounting for 21% of all deaths and the third commonest cause in developing countries accounting for 9.5% of all deaths. [2]

Cancer is a group of diseases characterized by an (i) abnormal growth of cells (primary tumour), (ii) ability to invade adjacent tissues and even distant organs (metastasis to form secondary tumour) and (iii) the eventual death of the affected person if the tumour progresses beyond the curable stage. Presently, the world cancer burden is about 14.1 million new cases annually

which are expected to rise to 22 million within the next two decades. <sup>[3]</sup>Globally, cancers in all forms are causing about 12% of all deaths. <sup>[2]</sup>Cancer deaths presently 8.2 million per annum, is expected to rise to 13 million within the next two decades. It is likely that in the next 25 years, cancer would be a rising global threat with the addition of 300 million new cases and 200 million deaths. <sup>[3]</sup>

Among the various type of cancers in both sexes combined, lung cancer is most commonly diagnosed cancer (11.6% of the total cases) and the leading cause of cancer death(18.4% of total cancer deaths) closely followed by breast cancer(11.6%), prostate cancer (7.1%) and colorectal cancer (6.1%). Among the cancer mortality most common type are colorectal cancer (9.2%), stomach cancer (8.2%) and liver cancer (8.2%).<sup>[8]</sup>More than 60% of the world's total cases occur in Africa, Asia and Central & South America, which also account for 70% of the world's total cancer deaths. The situation is made worse by the lack of early detection and access to treatment.<sup>[3]</sup> In males, the commonest cancers are lung cancer followed by prostate,colorectal,stomach and liver cancers whereas in femalesthe order is breast cancer followed by colorectal,cervix,uteri, lung and stomach cancers.<sup>[3]</sup>

In India, Cancer has become one of the ten leading causes of death. Around 1.5-2 million cancer cases occur at any given point of time.<sup>[2]</sup> According to the National Cancer Registry programme of the Indian Council of Medical Research, during the year 2012, 10.15 lakh new cases occurred in the country. Nearly 1.5 million patients require facilities for diagnosis, treatment and follow up at a given time. <sup>[2]</sup>

The five most frequent cancers in India are breast cancer followed by cervix, uteri, lip and oral cavity,lung and colorectal cancers. In males the order is carcinoma lung

followed by lip and oral cavity, stomach, colorectal and pharynx whereas in women,it is carcinoma breast followed by cervix, uteri, colorectal, ovary and lip and oral cavity.<sup>[3]</sup> Cancers in males are mostly tobacco related and in women, they are mostly associated with poor genital hygiene, early consummation or marriage, multiple pregnancies and contact with multiple sexual partners. The situation is further aggravated by limited facilities for screening and improper management of the patients. Hence, more than two-thirds of patients are already in an advanced and incurable stage at the time of diagnosis. <sup>[3]</sup>

Assam accounts for a major number of cancer patients in the entire North-East India. Kamrup is the worst hit district, followed by Nagaon, Darrang, Barpeta, Nalbari and Sonitpur. <sup>[4]</sup>Males have a higher preponderance than females in whom the commonest cancers are carcinoma pharynx and larynx, esophagus, mouth and lung whereas in females they are carcinoma cervix, uteri, breast and esophagus. Jorhat comprises of 2.8% of all the cancer cases in Assam. <sup>[4]</sup> Lack of awareness about the risk factors play a major role in its causation.

Globally Cancer prevention has become a major concern, particularly for low and middle-income countries. Although cancer is a devastating disease but, one-third of all cases are highly preventable. <sup>[2]</sup> If we have the adequate information about profile of cancer patients, then we can direct the prevention and early detection measures towards the vulnerable population to have greater impact on reducing the global cancer burden.

In view of the above, it was thought prudent to take up a study to know the profile of the patients suffering from different types of cancer and also to note their outcome at hospital discharge in Jorhat Medical College and Hospital, Jorhat.

## Materials and Methods

The present study was undertaken to determine the profile of cancer patients admitted in Jorhat Medical College and Hospital which is a tertiary care hospital situated in most eastern part of Assam. It was a hospital based retrospective patients record review study. Records of all the Cancer patients admitted in various departments of Jorhat Medical College and Hospital in last two years from May 2016 to April 2018 were reviewed in this study.

Records available in bed head tickets archived in Medical Record Department (MRD), hospital indoor registers in various departments of Jorhat Medical College and Hospital were reviewed by trained personals. Data collection period was two months- June and July 2018. Study variables were age, sex, religion, department of admission, district of residence, duration of hospital stay, type of Cancer, treatment received, outcome etc.

We included records of those Cancer patients who were admitted in the hospital or referred during the study period. Patients whose records were found complete and available with the MRD and/or in concerned departments were considered for this study.

Patients admission registers from eight Departments of Jorhat Medical College and Hospital, namely Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Pulmonary Medicine, ENT, Eye, and Orthopaedics were searched for Cancer patients and the bed head tickets of those patients were obtained from the Medical Record Department for the required data collection. Patients were grouped according to various parameters. Strict confidentiality was maintained while handling the dataset and patient's personal information was not shared with anyone. Data were processed and analysed using Statistical software, MS Excel 2010 and documented using MS Word 2010.

Due permission was taken from the Institutional Ethics Committee (Human), Jorhat Medical College, Jorhat. Administrative approval was obtained for availing the hospital records from the MRD and various Departments of Jorhat Medical College and Hospital for the purpose of this retrospective record based study while maintaining the ethical nature and privacy of the patient information.

## Results

### Demographic Profile

We found 160 cancer patients record who were eligible to be enrolled in present study. On observing the age distribution of these patients, it was found that the highest number of patients were from the age group 40-49 years (31%), followed by the age groups 60 years and above (28%), 50-59 years (18%), 30-39 years (13%), 20-29 years (7%), 10-19 years (2%) and least in less than 10 years (1%).(Table-1). Among the total cancer patients 56.9% were female. It has been observed that highest number of patients were Hindus (87%), followed by Muslims (5%), Christians (4%), Sikhs (2%) and Jains (2%).

**Table 1:** Distribution of Cancer patients according to Age and Sex

Age Group (In years)	Male	Female	Total
<10	1	1	2(1.25%)
10-20	3	1	4(2.5%)
20-29	4	7	11(6.88%)
30-39	5	15	20(12.5%)
40-49	22	27	49(30.62%)
50-60	12	17	29(18.13%)
>=60	22	23	45(28.12%)
Total	69(43.1%)	91(56.9%)	160(100%)

**Table 2: Department wise admission of Cancer patients**

Department	Frequency	Percentage
Medicine	14	8.75%
Surgery	75	46.88 %
Obstetrics & Gynae	18	11.25%
Pediatrics	4	2.05%
ENT	45	28.12%
Ophthalmology	2	1.25%
Orthopaedics	2	1.25%
Total	160	100%

**Department wise distribution**

Among the total cancer patients the highest numbers (46.88%) were admitted in the department of Surgery and the lowest numbers were in Ophthalmology and Orthopedics department (1.25%) each [Table 2].

Sex wise distribution of Cancer patients admission revealed that Surgery (77%) and Ophthalmology (100%) mostly dominated by females. On the other hand admissions of male cancer patients were more common in the department of Medicine (71%), Paediatrics (75%) and ENT (84%).

**District wise distribution**

As far as district wise distribution is concerned, highest number of patients hailed from Jorhat 69%, followed by Golaghat 23%, Sivasagar 3%, Nagaon 2%, Lakhimpur 1% and others (Kamrup, Tinsukia, Karbi Anglong) 2% [Figure 1].

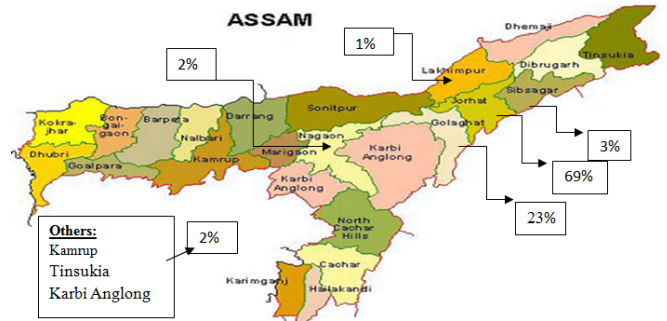


Figure 1: Distribution of Cancer patients according to District of residence

**Type of Cancer**

We observed that the occurrence of Oro-esophageal cancer was the highest 31% among all types of Cancer. Breast cancer occupied the second position 24%. This was followed by carcinoma of Hepato-biliary system (Carcinoma liver and gall bladder) 11%, Stomach 9%, Ovary 6%, Utero-cervix 4%, Prostate and testis 3%, Lung 2% and others (larynx, pancreas, renal cell carcinoma, retinoblastoma etc) 9% (Table-3). Among all Cancer patients, 11% had some distant metastasis while 36% did not have any metastasis. The status of metastasis of 53% patients was not known.

Majority of the patients stayed in Jorhat Medical College and Hospital for less than or equal to 1 week (72%), followed by 8-14 days (16%), 15-21 days (6%), 22-28 days (3%), 29-35 days (2%) and a minor number of patients stayed for maximum upto 42 days (1%)

**Table 3: Distribution of patients according to Type of Cancer**

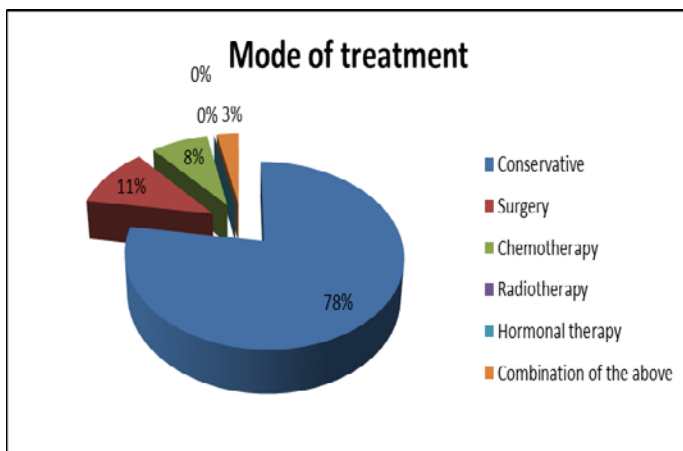
Type of cancer	Frequency	Percentage
Breast	39	24.38%
Gastric	14	8.75%
Hepato biliary	18	11.25%

Oro-esophageal	49	30.63%
Ovarian	10	6.25%
Utero-Cervical	7	4.38%
Lung	3	1.88%
Prostate and Testicular	5	3.13%
Others	15	9.35%
Total	160	100%

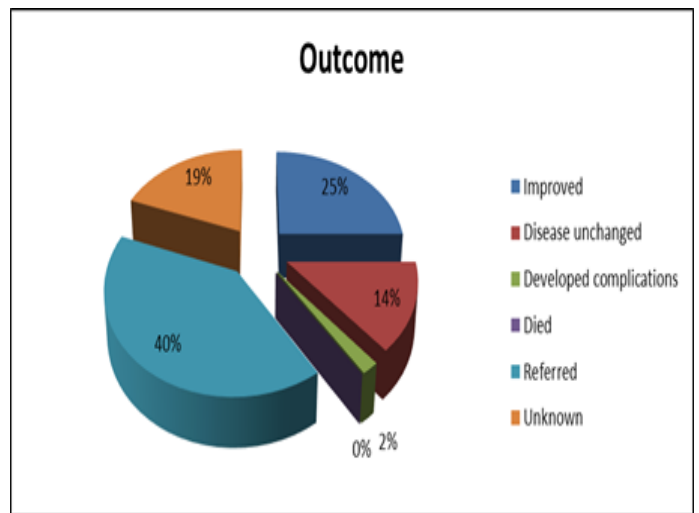
**Treatment modalities and out come**

Regarding the treatment modalities, majority (78%) of cancer patients received some form of Conservative treatment, 11% of them were operated and 8% of them got Chemotherapy. The rest (3%) were given combination of treatments [Figure 2].

The outcomes of the various modes of treatment were as 25% of the patients improved, for 14% of them, the disease remained unchanged, 2% developed complications and 40% of them were referred to some higher level specialised hospitals. The statuses of 19% of the patients were unknown [Figure 3].



**Figure 2: Cancer patients according to mode of treatment**



**Figure 3: Distribution of patients according to outcome**

**Discussion**

In the present study we tried to understand the profile of cancer patients admitted in different departments of Jorhat Medical College and Hospital from 2016 to 2018. It was found that the highest number of patients were belong to the age group of 40-49 years (31%) and least (1%) were found in the age group less than 10 years. This is in contrast to the findings by Puri S. *et al.*<sup>[6]</sup> and Rutuja V. Bangal *et al.*<sup>[2]</sup> where majority of the patients were above 60 years of age. Cancer among the young and productive age group in this region is a cause of public health concern. Further study is required to understand why cancer is more common in productive age group in this region.

Present study indicates that highest number of patients were Hindus (87%). This is similar to the findings of Puri S. *et al.*<sup>[6]</sup> and Rutuja V. Bangal *et al.*<sup>[2]</sup>. Mostly Hindu families are residing in the catering districts of Jorhat Medical College and Hospital. Therefore it is not an unusual observation.

Results from our study revealed that among the admitted patients female patients were more (56.87%). Male

patients dominated mostly in Medicine (71%), Paediatrics (75%) and ENT (84%) while females were more in Surgery (77%) and Eye (100%) department. Orthopedic department admitted equal number of male and female patients. We recorded highest numbers (84.44 %) of male patients with Oro-esophageal cancer which were admitted in ENT department. Investigation revealed that the most of them are addicted to tobacco consumptions. Earlier study<sup>[9]</sup> showed incidence of Oro-esophageal cancer in males were more may be because of habit of using tobacco. By profession males are hard workers and to relief their work tiredness they chew tobacco frequently in various forms in between their works and as such they are more vulnerable to Oro-esophageal cancer. Female cancer patients admitted were more in Surgery department (64%). Studies conducted by Felipe Batalini *et.al.*<sup>[5]</sup>, Puri S. *et.al.*<sup>[6]</sup>, Rutuja V Bangal *et.al.*<sup>[2]</sup> also observed similar findings. This may be explained by the fact that incidence of Breast cancer is high in this region and they usually get detected through breast cancer screening program.

As far as District wise distribution is concerned, highest number of patients were from Jorhat (69%), followed by Golaghat (23%) and Sivasagar (3%). This may be explained that people who are residing nearby districts to Jorhat Medical College and Hospital they prefer more to avail health care services from this hospital than people of far off places.

It has been observed that the irrespective sex Oro-esophageal cancer was the highest occurrence (31%), followed by Cancers of the Breast (24%), Hepatobiliary system (CA Liver and Gall Bladder) (11%), Stomach (9%), Ovary (6%), Utero-cervix (4%), Prostate and testis (3%), Lung (2%) and others (9%) (Larynx, Pancreas, etc.). This is in contrast to the findings by Puri S. *et.al.*<sup>[6]</sup> and Rutuja V. Bangal *et.al.*<sup>[2]</sup> who found that Carcinoma

lung and Carcinoma cervix had the maximum occurrence. Earlier study conducted by Jagannath Dev Sharma *et.al.*<sup>[7]</sup> found that in Kamrup district, Carcinoma esophagus in men and Carcinoma breast in women were the highest in occurrence. This is similar to our study findings. Both these cancers have a strong socio-cultural environmental relationship. The Oro-esophageal cancer occurs due to more tobacco and betel nut chewing and traditional practice of alcohol consumption in this part of the country. Breast cancer in women may be due to delayed marriage and pregnancy, hormonal imbalance, consumption of high fat diet and obesity, increased use of anti-hypertensive and oral contraceptives and lifestyle changes due to increased socio-economic status nowadays.

This study revealed that out of the total Cancer patients, 11% had some distant metastasis, 36% did not have any metastasis while the status of another 53% patients were unknown. The presentation of more patients at the hospital when metastasis has not yet occurred is a positive sign of better prognosis.

Majority of the patients (72%) preferred to stay for less than or equal to 1 week only in this tertiary care hospital and a minor number of patients stayed for maximum upto 42 days (1%). This may be due to non availability of appropriate therapeutic technology in this setup which led to referral of a majority of the patients to higher specialized Cancer hospitals within one to two weeks of admission.

Regarding the treatment modalities, majority (78%) of cancer patients received some form of Conservative treatment, 11% were treated surgically and 8% of them got Chemotherapy while the rest (3%) were given combination of treatments.

The outcomes of the various modes of treatment were variable. We observed 25% of the cancer patients were

marked improved at the time of discharge while 14% of them remained unchanged and 2% developed complications. Of the total admitted cancer patients 40% were referred to some higher center for specialized treatment. We could not ascertain the status of 19% of the patients due to various reasons like Left Against Medical Advice (LAMA), Discharge Against Medical Advice (DAMA), poor record keeping etc. The commendable percentage of improved status of cancer patients gives a clear sign of hope to health sector as well as the society. If cancer patients are reported early to the health care delivery system the further progress of the diseases may be arrested and patient can leave a socially and economically productive life.

### **Conclusions**

It has been observed from the present study that cancer is a major public health problem in this part of the country. Oro-pharyngeal and breast cancer were the most commonly admitted cancer patients which indirectly reflects the high community burden of these cancers. High admission in Surgery department reveals that most of the patients required surgical intervention. We observed that most of the cancer patients were treated conservatively as they were reported in terminal stages and leaving no scope for further arrest or prevention. Due to lack of adequate infrastructure and specialized resources a major chunk of the patient were referred to other health facilities. Therefore, it may be emphasized that adequate infrastructure development, capacity building, regular hospital and community based screening of cancer patients with appropriate public health awareness campaign are much required intervention for prevention and control of cancer in this region.

### **Limitations of the study**

This is a retrospective record based study and data were collected from available records. Hence, the results largely depend on the quality documentation and availability of the recorded data. Factors like unwillingness of patients to give critical information while recording their whereabouts also contribute to the limitation. Due to short study period (2 years) the exact pattern of occurrence of cancer in the region couldn't be estimated. Data regarding socio-economic status, education, occupation, risk factors and stage of diagnosis of the disease was not obtained. One potential drawback is data collection in a single location that is in Jorhat Medical College and Hospital only. Since the study is hospital based, it represents only the people seeking treatment during the period of the study. Hence, extrapolation of results to the varied general population is not possible through this study.

### **References**

1. Rajesh N, Dr Sreelakshmi K, Dr Ramesh K. Socio-demographic profile of patients with cancer of Cervix attending Tertiary care hospital. *International Journal of Scientific Research* 2014; 3:2277-79.
2. Rutuja V Bangal, Purushottam A Giri, Surekha V Bangal, Mahindra More, Kailash K Singh. Socio-demographic profile and associated risk factors in cancer patients. *International Journal of Medical Science and Public Health* 2014; 3:1389.
3. Park K. *Preventive and Social Medicine*; 24<sup>th</sup> Ed. India, M/S Banarsidas Bhanot, 2017; 400-03.
4. Times News Network. Assam records highest number of cancer cases in Northeast. *Times of India*. Feb 5, 2013.

5. Batalini F, Gomes M, Fabio, Kuwae F, Macanhan G, Julio LBP. Cancer complaints: The profile of patients from the emergency department of a Brazilian oncology teaching hospital. *F1000 Research* 2017; 6:1919.
6. S Puri, M Ashat, A Pandey, NK Goel, A Singh, V Kaushal. Socio demographic characteristics of cancer patients: Hospital based cancer registry in a tertiary care hospital of India. *Indian Journal of Community Medicine* 2014; 51(1):1-4.
7. Sharma JD, Kakati AC, Barman D, Sharma A, Kalita M. Cancer statistics in Kamrup urban district: Incidence and mortality in 2007-2011. *Indian Journal of Community Medicine* 2016; 53(4):600-06.
8. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *A Cancer Journal for Clinicians* 2018; 68(6):394-24.
9. Johnson N. Tobacco Use and Oral Cancer: A Global Perspective. *Journal of Dental Education*. April 2001; 65(4):328-39