

# EPIDEMIOLOGY OF CANCERS IN SOUTHERN INDIAN REGION

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**ABSTRACT:** We aimed to describe the frequency, distribution and to evaluate the relationship between the disease and the various factors (such as age, gender etc.) from a population of the Karimnagar district of Telangana state.

We reviewed the data of all the patients admitted in the hospital with different types of cancers over a period of 12 months.

Finally, we discussed the incidence rate of the different types of cancers considering their age, gender and also given the brief treatment guidelines for the cancer which has high incidence rate.

**Index terms:** Cancer, Epidemiology, Karimnagar, Breast cancer, Age.

## INTRODUCTION

Epidemiology is the study of relationship between disease (or) any other biological phenomenon & various factors (environmental factors, life style, social setting, individual characteristics) of trial etc., which can influence this frequency, distribution and evolution.

Cancer is the major cause of morbidity and mortality in developing and developed countries alike [3]. Population ageing is often assumed to be the main factor for the increase in cancer incidence, death rates and the health care costs [4]. The burden of cancer is still increasing worldwide despite advances for diagnosis and treatment.

Epidemiological studies have shown that many cancers may be avoidable. It is widely held that 80%-90% of cancers may be due to the environmental and lifestyle factors such as tobacco, alcohol and dietary habits [1]. It was estimated that in the year 2000, worldwide over 10 million new cases of cancers occurred including 5.3 million men and 4.7 million women and over 6 million people died from different type of cancers [2].

In the high income countries, age-standardized cancer mortality is decreasing in all age groups, although more than half of all cancer deaths are for the people older than 70 years. In India, the weakness of data in terms of population coverage, no evidence exists for a decrease in age-standardized cancer mortality rates and most deaths occur in individuals younger than 70 years [3].

The International Agency for Research on Cancer GLOBOCAN project has predicted that India's cancer will be approximately double in the next 20 years, from slightly over a million new cases in 2012 to more than 1.7 million by 2035. These indicates that the number of cancer deaths will also rise from 6,80,000 to 1.2 million in the same period [3].

In India, there is no National registry exists to provide the cancer incidence or mortality data. However, the National Cancer Registry Programme (NCRP, established by the Indian Council of Medical Research ICMR, I'm 1981) provides population-based data from a selected network of 28 cancer registries located across the country [5].

In some western countries, such as USA [6] and the UK [7][8] cancer is overtaking cardiovascular disease as the leading cause of death. The most frequently cancer affecting organs are lung, breast, colon, rectum, stomach and cervix. Epidemiology of cancer applicable to Karimnagar district of Telangana state population have been discussed here.

This study has been carried out in the Oncology department of Chalmeda

Anandrao Institute of Medical Sciences(CAIMS), Cancer hospital and Research Institute, Karimnagar which caters to neighboring districts like Adilabad, Jagital, Mancherial, Peddapalli.

## METHODOLOGY

To evaluate the relationship between the disease and the various factors (such as age, gender etc.) derived from population based cancer registries, which aim to record information on all the new cases of cancer occurring in a defined population.

We collected and reviewed data of all patients admitted with cancer to Chalmeda Anandrao Institute of Medical Sciences (CAIMS) & Cancer research institute in the Karimnagar district of Telangana state for the period of 12months i.e., from October 2016 to October 2017.

The CAIMS is a full-fledged Medical college with 1000 bedded teaching Hospital established in 2003 located in Karimnagar region of Telangana State which is attached with the cancer research institute. It is a referral hospital for cancer patients from Karimnagar district, although some cancer patients come from outside the district. After medical checkup in causality ward, cancer patients were admitted in oncology; cancer research institute which contains 100 beds with 6 doctors and supporting staff.

Data were collected retrospectively from patient medical files. Only patients who were hospitalized were included in the study. Patient with cancer were identified by performing specific diagnostic tests. The data from all case sheets were entered into a database to calculate descriptive statistics.

## MATERIALS AND METHODS

### Study site:

The present study was conducted at in-patient department of Chalmeda Anandrao Institute of Medical Science & cancer hospital and research institute in Karimnagar city, Telangana.

### Study design:

This is a Retrospective, descriptive observational study.

### Study period:

This study was carried out for a period of 12 months.

### Source of data:

The data including demographics, diagnosis and all the other relevant and necessary data is collected from Patient's case sheet. All the data was documented in a suitably designed data collection format developed for the study.

## DISCUSSION AND RESULTS

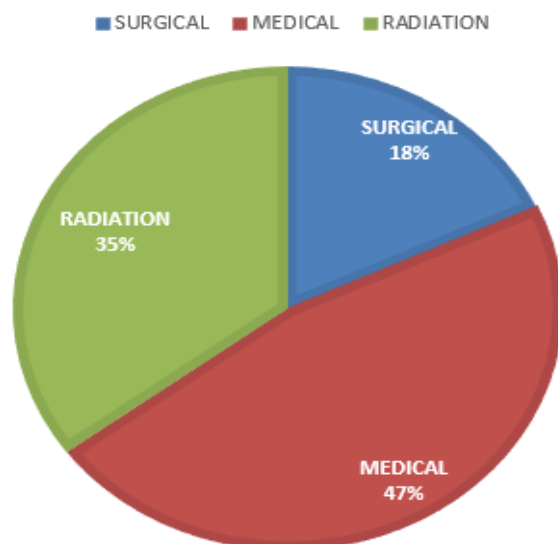
Epidemiology is the study of the distribution and determents of diseases and other health states in population. Descriptive epidemiology describes disease and/or exposure and may consists of calculating rates like incidences and prevalence.

The Greek physician Hippocrates is known as the father of medicine, he is the first person known to have examined the relationship between occurrence of disease and environmental influences [9].

The study was conducted for a period of 12 months and the data of about 1395 patients were collected and analyzed.

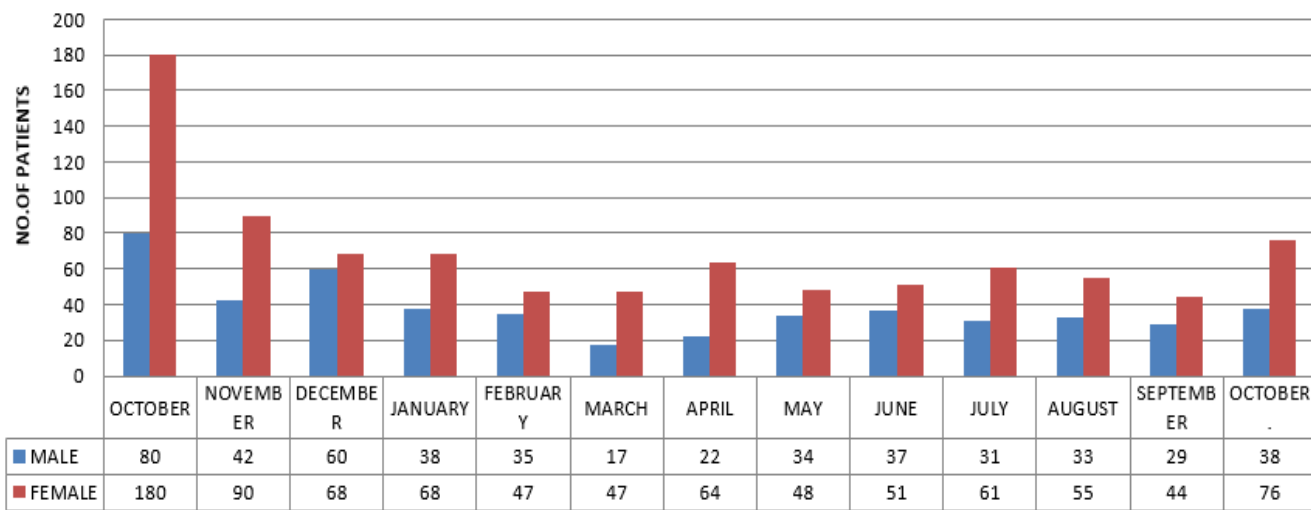
Out of the total, 18% are treated surgically, 35% with radiation and 47% are with the chemotherapeutic drugs (Data was examined based on the admissions according to the departments) (fig-1).

**FIG-1**  
**ADMISSIONS BASED ON DEPARTMENT**



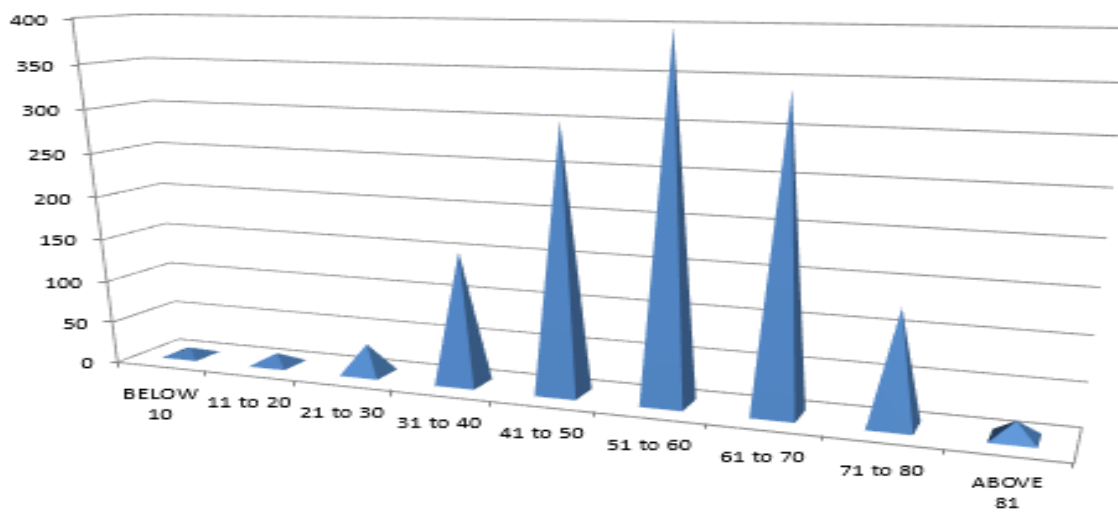
This study reveals that the women are more prone to cancers comparative to the males (out of 1395, males are 496 and females are 899) (table-1) and the age group of 51-60 years are more likely to be effected with different types of cancers (fig-2). Exposure to various chemicals, mutations, ageing factors plays a major role in the development of the cancers.

**Chart-1**  
**NO.OF MALE:FEMALE PATIENTS**



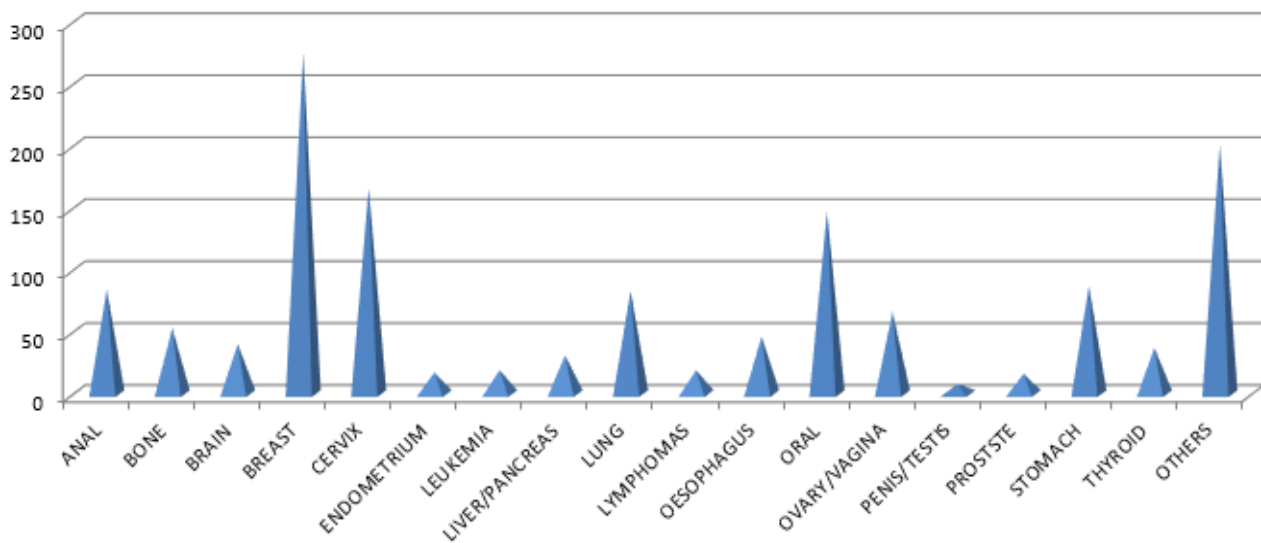
**Fig-2**

**CANCER INCIDENCES IN DIFFERENT AGE INTERVALS**



From Fig-3, the prevalence of different types of cancers are shown.

**Fig-3**  
**CANCER PATIENTS WITH DIFFERENT DIAGNOSIS**



In India, the oral cancers are high because betel but chewing, tobacco consumption in the form of chewing or smoking is more prevalent and the women above 45 years are prone to breast and cervical cancers.

### TREATMENT IN BREAST CANCER

The treatment of breast cancer depends on various factors including the stage of cancer and age of the patient. Breast cancer is usually treated with surgery followed by chemotherapy or Radiation therapy or both.

- Hormone receptor positive cancers are treated with hormone blocking therapy.

Ex: - Anti-estrogens- Tamoxifen

Aromatase inhibitors - Anastrozole, letrozole

- Standard surgeries include: -

Mastectomy which is removal of whole breast

Quadrantectomy which is removal of one quadrant of the breast

Lumpectomy which is removal of small part of breast

- Chemotherapy

The chemotherapeutic agents are administered in combination for a period of 3 to 6 months.

Ex: - Cyclophosphamide with Doxorubicin, sometimes Taxanes are added.

- Radiation

Radiation therapy can be given on external beam radiotherapy or as brachytherapy (internal radiotherapy).

- Now-a-days monoclonal antibodies are also given to treat the breast cancer, specially HER positive cancers.

Ex: - Trastuzumab

### CONCLUSION

From this study,

- Incidence of cancer more in females than males and the most common type is Breast and Cervical cancer. The common type in males is mouth cancers.
- The people with the age group of 51 to 60 years are more prone to cancers than other age groups.

### ACKNOWLEDGMENT

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## REFERENCES

- [1] WHO, The World Health Report, Geneva, 1997
- [2] Parkin, D. M., Bray, F., Ferlay, J. and Pisani, P., Estimating the world cancer burden: Globocon 2000. *Int. J. Cancer*, 2001, 94, 153–156.
- [3] Ferlay J, Soerjomataram I, Ervik M, et al. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 11. Lyon, France: International Agency for Research on Cancer, 2013. <http://globocan.iarc.fr> (accessed Dec 23, 2013).
- [4] Yancik R. Population aging and cancer: a cross-national concern. *Cancer J* 2005; 11: 437–41.
- [5] Indian Council of Medical Research. National Cancer Registry Program. <http://www.ncrpindia.org/> (accessed Dec 20, 2013).
- [6] Jemal.A., Murray, T., Ward, E., Samuels, A., Tiwari, R.C., Ghafoor, A., Feuer,E.J and Thun,M.J, Cancer statistics. *CA Cancer JClin*, 55(1): 10-30 (2005).
- [7] Cancer: Number one killer . BBC News online. Retrieved 2005-01-29(2000)
- [8] National Cancer Institute Questions and Answers About Beta Carotene Chemoprevention Trials U.S. National Institutes of Health
- [9] Ray M. Merrill (2010). Introduction to Epidemiology. Jones & Bartlett Learning. p. 24. ISBN 0-7637-6622-4.

