CHAPTER 2

BREAST CANCER STATISTICS

2.1 INTRODUCTION

Breast cancer is the oldest known type of cancer in humans. The oldest case of cancer was identified and defined and recorded in Egypt around 1600 BC. Since then research has been going on to eradicate it but still this disease is considered as one of the most deadliest and dreaded diseases of all times, as deaths caused by only breast cancer in the US in 2012 reached 40,000.

According to World Cancer Research Fund International (WCRFI), the number of cancer cases around the world was estimated as 12.7 million in 2008, and by 2030 it is expected to rise to 21 million [135]. In Denmark the maximum cancer cases were found. In Denmark, the number of people affected per 1,00,000 was 326 in 2008. The age standardized rate was at least 300 per 1,00,000 for Australia, Belgium, Denmark, Ireland, New Zealand, France, and the United States of America.

The breast cancer is considered to be one of the leading causes of death among women. The breast cancer statistics show that every 3 minutes a woman is diagnosed and every 13 minutes a woman dies. Also 1 in 8 women may be diagnosed and 1 in 30 will die from breast cancer during her lifetime [134].

Europe, Oceania and North America are the top ten countries for breast cancer [135]. In India, around five lakes fifty five thousand people died of cancer in 2010 and our nation was the first of the emerging economies to join International Agency for Research on Cancer (IARC) in 2006. The most commonly occurring cancers in females are Cervical Cancers and Breast Cancers. The common cancers seen in India are tobacco related cancers of oral cavity, throat, lungs in men and cancers of the uterine cervix and breast in women. The breast cancer incidence and mortality in India is summarized below:

- 22.9 age-standardized incident cases per 1,00,000 women in 2008.
- 11.1 age-standardized breast cancer deaths per 1,00,000 women in 2008.
- The number of cancer death in 2010 is 90,659.
Most common cancer in women occurs in metropolitan cities Delhi, Mumbai, Bhopal, Chennai, Kolkata, and Bangalore. 52.68% increase is projected in the registered number of cancer cases in Delhi and 26.6% increase is expected in the other metropolitan cities over the next decade. Mumbai is experiencing the higher incidence rate in the age adjusted analysis. About 50% cancer mortality is reported from the age group of 55 years and above [79]. In the past 24 years the incidence of breast cancer has doubled in the metropolitan cities according to the report of the Indian Council for Medical Research (ICMR).

A CAD system can be very useful to draw the attention of the radiologist to a tumor which might otherwise have escaped his/her notice. Also it helps the radiologist to diagnose cancer accurately.

Each year 10.9 million people suffer from breast cancer worldwide and 6.7 million die because of the disease. The breast cancer is prevalent in almost all the countries of the world.

Breast cancer is the most common cancer in women worldwide with 1.05 million new cases every year and represents over 20% of all malignancies among females. The population based cancer registry data from various parts of the india has revealed breast cancer as the commonest cancer among women in Delhi, Mumbai, Calcutta, Ahmadabad and Trivandrum. Breast cancer is listed as the second leading disease among women in the rest of the other Indian registries [109].

Among women breast cancer is the most prevalent cancer and approximately one million women are affected worldwide. “India is sitting on a silent breast cancer bomb”. In India a new case of breast cancer is detected every seven minutes. One in 21 women is affected. In the urban population the cases are multiplying. The Non-Government Organization “Women Wellness Worldwide” (WWW) has determined through awareness, early detection and prompt treatment, to free the city of the Taj Mahal from breast cancer by 2020[29].

2.2 FACTS AND STATISTICS OF BREAST CANCER

Breast cancer has become a troubling epidemic in India. It is quickly becoming the leading cancer in women across India. Every year nearly 55,000 people are diagnosed with
breast cancer in the UK, which is the equivalent to one person every 10 minutes. A recent study projects 1 in 8 women in the UK will develop breast cancer in their lifetime[17]. Fig.2 shows that 1 in 8 women is affected by breast cancer in her life in UK.

![Fig.2](image)

Interestin Quotes about Breast Cancer:

“Every fifty seconds someone dies of cancer in India

Every day eight women die due to breast cancer in India”

Breast cancer is the second most common cause of death from cancer in women in the UK. Every year in the UK nearly 12,000 people die from breast cancer. Breast cancer also affects men, but it is rare; nearly around 400 men are diagnosed each year. Nearly 85% people survive breast cancer beyond five years.

The three main risk factors for developing breast cancer are:

1. **Gender** - being a woman is the biggest risk factor.

2. **Getting Older** - the older the person the higher the risk, more than 80% of breast cancers occur in women over the age of 50.

3. **Significant Family History** – around 5% of people diagnosed with breast cancer have inherited a faulty BRCA1 or BRCA2 gene.
2.3 CURRENT INCIDENCE OF BREAST CANCER

Breast cancer in India has been rapidly increasing as Indian lifestyles become more western. A decade ago only ten per 1,00,000 Indian women were diagnosed with breast cancer. Today, this number has more than doubled so that now twenty-three per 1,00,000 women are diagnosed with the disease. However, as there is a lack of cancer surveillance, this number could be much higher. In comparison the incidence of breast cancer in the United States is estimated to be 130 per 1,00,000 women, while the number of new breast cancer diagnoses in India seems to be vastly smaller than that in the western countries. The rapid rise in incidence is cause for alarm, especially when examining urban areas [19].

In twenty-five years breast cancer has moved past cervical cancer as the most common form of cancer in almost all urban areas. Bangalore, for example, has seen a rapid rise in the proportion of women diagnosed with breast cancer is shown in Fig.3.

Breast cancer has also become more common in rural areas. In 2020 breast cancer will become the leading cancer in women in all regions of India. This urban-rural area in breast cancer incidence is shown in Fig.4.
Fig. 4 Breast Cancer Incidences in India 2010

While India has one of the lowest rates of breast cancer diagnosis globally, it has one of the highest mortality rates. Fifty percent of Indian women diagnosed with breast cancer die due
to the disease. China has a twenty five percent mortality rate. Owing to early and regular screening in the United States and China, the mortality rate is decreasing. The Mortality Rates of Various Countries by breast cancer affected is shown in Fig.5.

![Mortality Rates of Various Countries](image)

Fig.5  Mortality Rates of Various Countries

Another key metric for measuring breast cancer survival is the five-year survival rate, or the percentage of women who are alive five years following a breast cancer diagnosis. In India the five-year survival rate is extremely low. Overall, less than fifty percent of women diagnosed with breast cancer in India survive for five years post diagnosis. Table 1 depicts the low five-year survival rate in select cities or states of India.
India's five-year survival rate is shockingly low compared to the United States and China. Their five-year survival rates are 90% and 82% respectively. Even though more women are diagnosed with breast cancer in these two countries, women survive longer than their Indian counterparts and are less likely to die due to the disease.

### 2.4 FUTURE PREDICTIONS FOR BREAST CANCER

By 2030 it is estimated that 1/5th of the world's cancer cases will be in India. This means that breast cancer rates will also increase significantly. Every year there has been a rise in incidence of 0.5% to 2% across all regions of India and the trend is expected to accelerate. Importantly, there will be a rise in breast cancer across all age groups but those under 45 years of age will be especially affected. As shown Fig.6, incidence of breast cancer will exceed 2,00,000 cases a year by 2035.
With this increase in incidence, there will also be a corresponding increase in mortality. If no action is taken to reduce breast cancer in India and increase screening and diagnosis, mortality is predicted to reach almost 1, 20,000 by 2035. Fig.7 shows increasing breast cancer rate mortality in India.

Fig.7  Increasing Rate of Breast Cancer Mortality in India

2.5 PREDICTION OF BREAST CANCER IN INDIA

Fig.8 (a) shows the prediction of numbers of deaths due to breast cancer in 2015 and Fig.8 (b) shows the predictions of the numbers of newly detected cases of breast cancer [18].

In the year 2015, 1, 55,000 new cases of breast cancer are estimated and about 76,000 women are expected to die due to it. The gap is getting to be widening, which means, we need to work aggressively on early detection.
2.6 AGE WISE AFFECTED BREAST CANCER STATISTICS IN INDIA

In India, the average age of developing breast cancer has undergone a significant shift over the last few decades. Fig.9 shows age wise breast cancer affected in India [20].
Fig. 9 Age Wise affected Breast Cancer Statistics in India

The horizontal line lower down represents the age groups: 20 to 30 years, 30 to 40 years and so on, while the vertical line represents the percentage of cases. The blue colour indicates the incidence 25 years back, and maroon colour shows the situation today. 25 years ago, 2% were in 20 to 30 years age group, 7% were in 30 to 40 and so on. 69% of the breast cancer patients were above 50 years of age. Presently, 4% are in 20 to 30 years age group, 16% are in 30 to 40, and 28% are in 40 to 50 age group. So, nearly 48% of patients are below 50. An increasing number of patients are in the age group of 25 to 40 years of age and this trend is definitely very disturbing.

2.7 INCIDENCE OF BREAST CANCER IN INDIA

Breast cancer is now the most common cancer in most cities in India, and 2nd most common in the rural areas. Fig 10.(a) Shows percentage distribution of top ten Leading Sites of Cancers in females in Mumbai.
Fig. 10 (a) Top Ten Leading Sites of Cancer for Females in Mumbai
The Fig.10(b) shows complete details of cancers in various cities like Mumbai, Delhi, Bangalore, Bhopal, Kolkata, Chennai, and Ahmadabad etc. can be found on the PBCR(Population Based Cancer Registry). Website. Breast cancer accounts of 25% to 32% of all female cancers in all these cities. One fourth (or even approaching one thirds) of all female cancer cases are breast cancers [20].

Fig.10 (b)  Occurrence of Cancers in Various Cities