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Current Cancer Scenario and Analysis from Kolasib District of Mizoram, Northeastern India

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ABSTRACT

This study, conducted from 2015 to 2020, focused on cancer patients in the Kolasib District of Mizoram, Northeast India. Over six years, 705 cases of cancer were recorded, encompassing 25 different types. Among these, oesophageal cancer emerged as the most prevalent, accounting for 129 cases (18.30%), followed by lung cancer, which comprised 106 cases (15.04%). Cervical and stomach cancers shared the third position, each contributing 66 cases (9.36%).The study also highlighted gender disparities, revealing a higher incidence of cancer among females compared to males. Additionally, the age group most affected was 50-59 years, followed by individuals aged 60-69 years, with minimal cases reported in individuals below 29 years. Despite ongoing efforts by the government and healthcare workers, the cancer incidence rate in the region remains high, underscoring the need for further research in this area.

Keywords: *Kolasib, Cancer*

1. INTRODUCTION

Cancer is a broad term for a group of diseases characterized by the uncontrolled division and growth of abnormal cells (Hanahan &Weinberg, 2011). It can occur in almost any part of the body and is often classified according to the type of cells or tissue where it originates (Weinberg, 2014). Cancer cells can invade surrounding tissues and spread to other parts of the body (metastasis), making the disease more difficult to treat (Chaffer & Weinberg, 2011). The severity of cancer's effects depends on the type, location, and stage of the disease.

Cancer's implications are far-reaching, impacting not only the health of those diagnosed but also their families, communities, and society at large (Hewitt *et al*., 2005). While advances in treatment and prevention continue to improve survival rates, cancer remains a complex and challenging disease with significant medical, emotional, social, and financial consequences (Zafar & Abernethy, 2013; Stanton *et al*., 2015; Siegel *et al*., 2020).

Like many other parts of India, cancer rates in Mizoram have been rising over the years. While there is no comprehensive state-level cancer registry for Mizoram, available data from cancer registries like the National Cancer Registry Programme (NCRP) suggest an increasing trend of cancers in the northeastern states. This may be linked to changing lifestyles, increasing tobacco and alcohol consumption, and the adoption of more sedentary habits.

While Mizoram has some healthcare infrastructure, the availability of cancer screening, early diagnosis, and specialized treatment facilities is limited. Patients often have to travel to larger cities like Guwahati or even Delhi for advanced diagnostic tests or treatments. This delay in diagnosis can result in higher mortality rates, as cancers are often detected at more advanced stages.

Cancer is one of the most prominent and common disease among the elderly people in the state of Mizoram (Zothanzami & Chhakchhuak, 2020). The state of Mizoram, which is located in the northeastern corner of India recorded the highest incidence rate of cancer in the world despite its small population size (Lalpawimawha and Lalruatfela, 2016). Cancer is a multifactor disease and has many causes. The lifestyles and habitat as well as dietary food may contribute to the development of cancer among the Mizo population. Majority of the Mizo population indulged in consumption of betel products, smoking,

dried vegetable products and smoke meat (Phukan *et al*., 2014; Lalthanpuii *et al*., 2015; Lalpawimawha *et al*., 2015). Despite the increase incidence rate of cancer occurrence in Mizoram, medical infrastructure and human resources for cancer treatment is quite minimal which cause severe problem to the cancer patients (Ngaihtei *et al*., 2019)

Study area

Kolasib District is situated in the northern part of Mizoram, a state in the northeastern region of India. The district holds a strategic position as it shares its northern boundary with the state of Assam, which makes it a key link between Mizoram and the rest of India. Kolasib is one of the 11 districts in Mizoram and serves as a critical geographical area for transportation and trade between Assam and Mizoram. The district is known for its hilly and rugged terrain, typical of the region, with lush forests, river valleys, and elevated peaks. Kolasib District has a population of approximately 83,955 people (as per the 2011 Census). The population is spread across rural and urban areas, with Kolasib town serving as the district headquarters. The district is predominantly inhabited by the Mizo people, who speak the Mizo language which is part of the Tibeto-Burman language family. Kolasib, like other rural areas in Mizoram, faces challenges related to healthcare access, infrastructure development, and economic diversification. The district's growth, fuelled by its agricultural base and improved infrastructure, presents numerous opportunities for future development in sectors such as tourism, education, and healthcare.

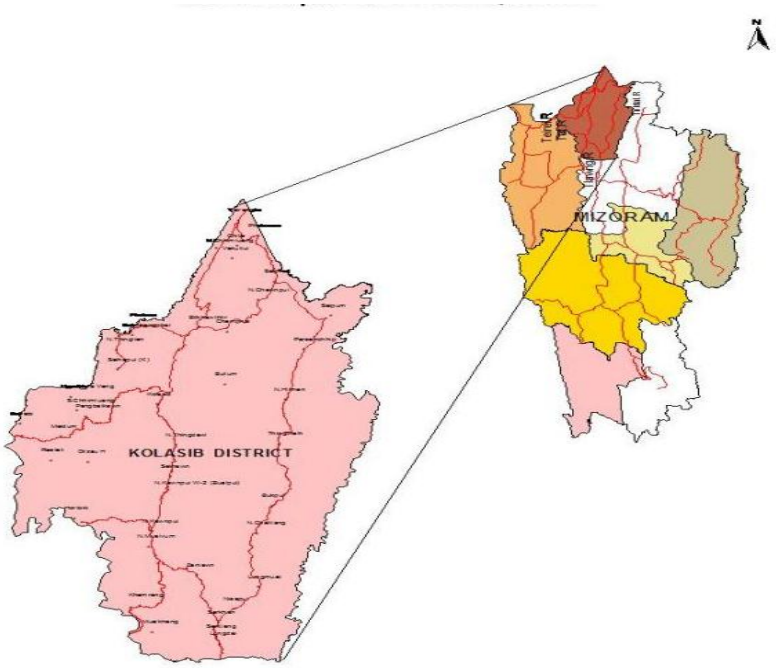

Fig. 1: Kolasib District Map of Mizoram, India.

Methodology

The research was a hospital-based study utilizing data from the Population-Based Cancer Registry (PBCR) at Civil Hospital Aizawl, Mizoram. Cancer-related data were obtained from hospital diagnostic records, ensuring a high level of accuracy and reliability. The study focused on cancer cases in the Kolasib District of Mizoram during the period from 2015 to 2020. Data analysis was conducted using Microsoft Excel to evaluate various parameters related to cancer patients, including gender distribution, age group comparisons, and the percentage frequency of cancer occurrences. This comprehensive analytical approach highlighted cancer patterns, trends, and demographics in the region, providing valuable insights for public health initiatives and cancer management strategies.

2. RESULTS & DISCUSSION

The study, conducted from 2015 to 2020 in the Kolasib District of Mizoram, identified 25 different types of cancer from 705 patients (Fig.2). While cancer occurrence was common during the study period, the prevalence and frequency of individual cancer types varied significantly. The findings are summarized as follows:

- **Bone Cancer:** A rare occurrence, with only 15 cases (2.13% of total cases).
- **Brain Cancer:** Extremely uncommon, with just 3 cases (0.43%).
- **Breast Cancer:** Frequently observed among women, with 60 cases (8.51%), making it the fourth most common cancer in the study area.

- **Cervical Cancer:** A prevalent type among women, with 66 cases (9.36%), ranking third overall.
- **Colon Cancer:** Recorded in 15 cases, contributing 2.13% of the total.
- **Eye Cancer:** The rarest, with only 1 case (0.14%).
- **Larynx Cancer:** Uncommon, with 7 cases (0.99%).
- **Liver Cancer:** Moderately frequent, with 35 cases (4.96%).
- **Lung Cancer:** The second most common cancer, with 106 cases (15.04%) and a notably high mortality rate.
- **Mouth Cancer:** A common type, with 46 cases (6.52%).
- **Nasopharynx Cancer:** Reported in 31 cases (4.40%).
- **Neck Cancer:** Recorded in 12 cases (1.70%).
- **Oesophageal Cancer:** The most common cancer, with 129 cases (18.30%).
- **Ovarian Cancer:** Rare, with 11 cases (1.56%), despite being more common in other regions.
- **Penile Cancer:** Among the least common, with only 4 cases (0.57%).
- **Prostate Cancer:** Accounted for 14 cases (1.99%), a moderate frequency.
- **Rectal Cancer:** Observed in 10 cases (1.42%).
- **Skin Cancer:** Limited incidence, with 6 cases (0.85%).
- **Stomach Cancer:** One of the more common types, with 66 cases (9.36%), ranking third overall, potentially influenced by factors such as diet, lifestyle, and genetics.
- **Throat Cancer:** A common cancer among males, with 18 cases (2.55%).
- **Thyroid Cancer:** Rare, with 10 cases (1.42%).
- **Tongue Cancer:** Very rare, with only 2 cases (0.28%).
- **Tonsil Cancer:** More frequent, with 21 cases (2.98%).
- **Uterine Cancer:** Less common compared to cervical cancer, with 4 cases (0.57%).

This data highlights the significant variation in cancer prevalence across types and underscores the importance of targeted research and interventions.

The study also highlighted the disparity in cancer occurrence rates between male and female respondents (Fig.3). While females exhibited a slightly higher number of cases overall, no significant disparity was observed, except in 2015 and 2020. This slight difference could be attributed to certain cancers, such as uterine, cervical, and breast cancers, which are more commonly observed among female patients.

Age is a significant factor in cancer-related issues as shown in Fig.4. The study revealed that individuals under the age of 29 rarely experience cancer, with minimal cases reported in this age group, as illustrated in the figure. However, cancer incidence shows a sharp increase among those aged 30 and above. The highest occurrence was observed in the 50-59 age group, followed by the 60-69 age group. The 40-49 age group ranked third, followed by the 70-79 age group. Several factors, such as lifestyle, diet, and eating habits, may contribute to the higher prevalence of cancer among individuals over 30.

The study documented cancer cases in Kolasib District, Mizoram, ranging from 104 to 134 between 2015 and 2020 (Fig.5). The highest number of cases was recorded in 2017, with a total of 134, followed by 120 cases in 2016. In 2020, 119 cases were reported, slightly higher than the 112 cases documented in 2019. The lowest number of cases occurred in 2015, with a total of 104. Despite the efforts of the government and healthcare personnel, the persistently high number of cancer cases highlights the need for enhanced healthcare facilities and improvements in individual lifestyles and habits.

3. ACKNOWLEDGEMENT

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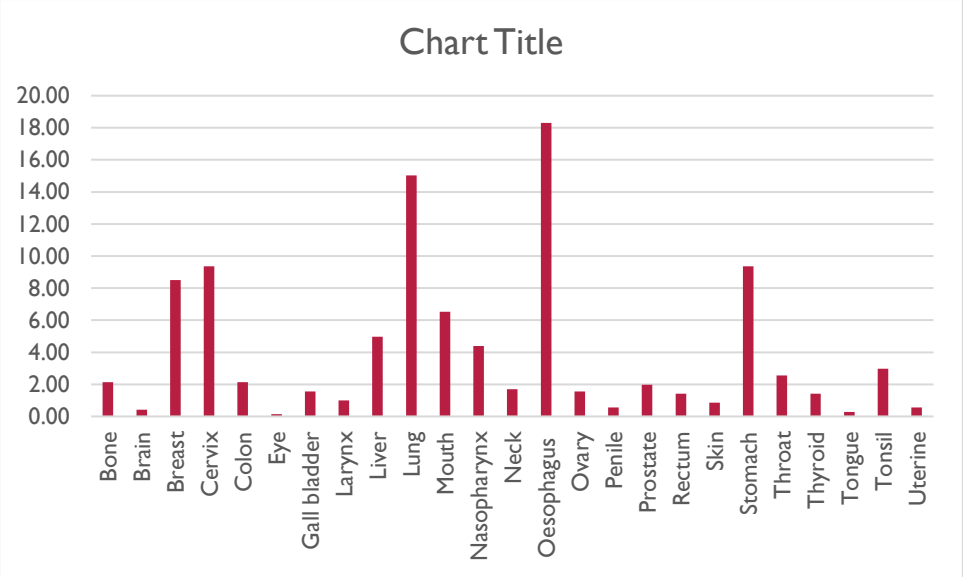

Fig.2: Cancer types in percentage from Kolasib District of Mizoram.

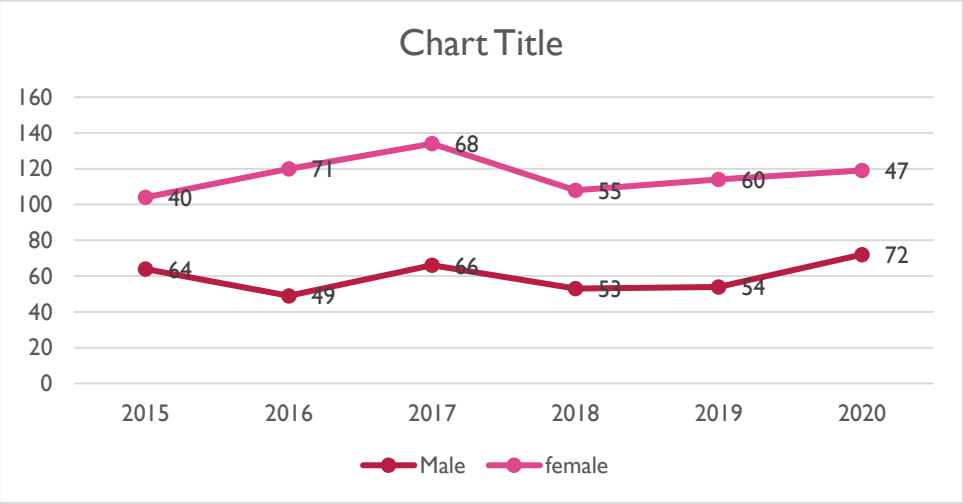

Fig.3: Comparison of male and female cancer cases from Kolasib District of Mizoram.

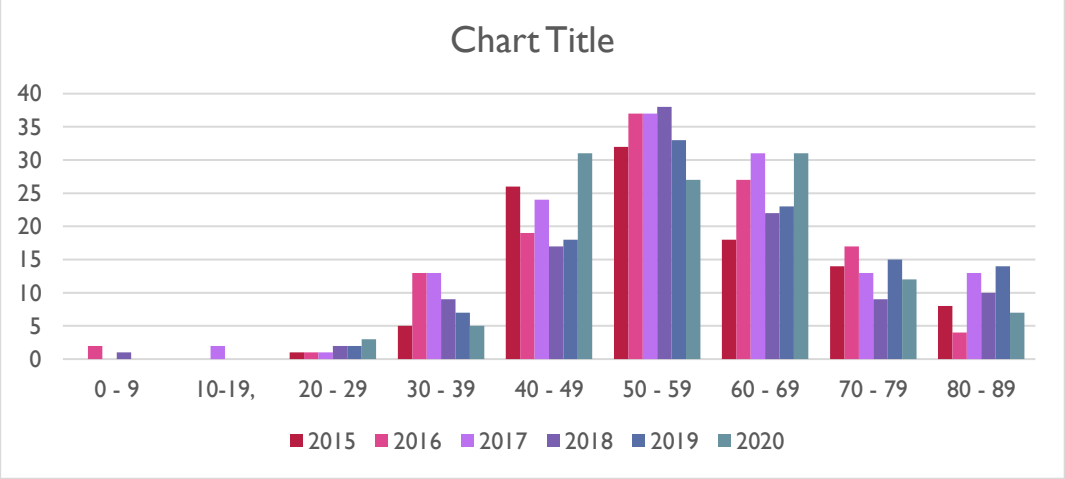

Fig.4: Cancer occurrence rate among different age groups

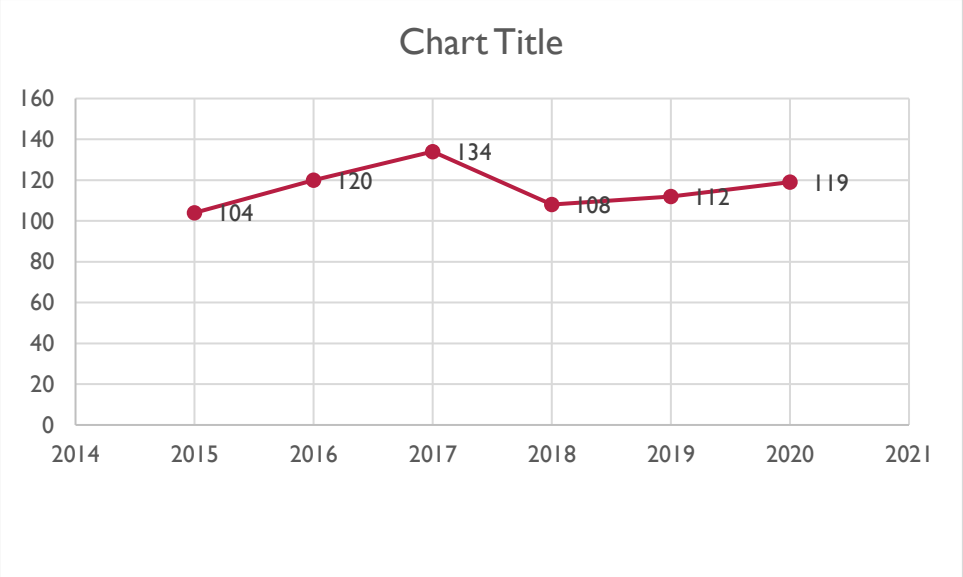

Fig.5: Overall cancer cases from Kolasib District of Mizoram, India.

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