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(RESEARCH ARTICLE)

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Changing pattern of female cancer during last 10 years-experience from a Tertiary Cancer Center

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Abstract

Background-The global burden of cancer continues to increase largely because of the aging and growth of the world population alongside an increasing adoption of cancer causing behaviors, particularly smoking in economically developing countries and life style changes. India exhibits heterogeneity in cancer. Since two decade changes in the pattern of cancer has been observed in various studies. So this retrospective study was done to observe the changing pattern in female cancer in our institution during last 10 years.

Aims and object-To observe the changes in female malignancies during last 10 years in terms of age shifting and site of presentation.

Result/observation-Ca cervix is on decreasing trend while ca breast is on increasing pattern.Ca gallbladder, ca esophagus, colorectal cancer and ca ovary are on gradually increasing trend while hematological malignancy is showing a sharp rise in trend.

Conclusion- Evidence-based policy decision on steps for cancer prevention and cancer control should be formulated. More emphasis should be given on the cancer which are showing an increasing trend so that proper and effective screening and cancer control program can be implicated.

Key Words: Female Cancer; Changing Pattern; Last 10 Years; Age Shifting; Policy Decision

1. Introduction

Globally, non-communicable diseases (NCDs) accounted for 71% of total deaths. In India, non-communicable diseases are estimated to account for 63% of all deaths and cancer is considered as one of the leading causes (9%) [1]. Cancer is the second leading cause of death globally after cardiovascular diseases [2].The global burden of cancer continues to increase largely because of the aging and growth of the world population alongside an increasing adoption of cancer causing behaviors, particularly smoking in economically developing countries. India exhibits heterogeneity in cancer. Local cultural factors and lifestyle choices may have contributed to the heterogeneity in cancer incidence pattern and differences in India. Cancer registries are recognized as vital components of national cancer-control programs [3]. Lung, mouth, esophagus, stomach and nasopharynx cancers are the most common cancers in men. Lung cancer is the leading site in metropolitan cities and the southern region, whereas mouth cancer is the leading site in the West and Central regions. Lung cancer and oral/mouth cancer are the most common cancers among males in the Indian subcontinent [4]. Consolidated reports of 27 population-based and 17 hospital-based registries for 2012–14 show that breast cancer is the most common cancer in India and continues to increase in incidence. Cancers of the uterus, ovary, and lung are increasing in women in urban areas, whereas overall incidence of cervical cancer is decreasing [5].

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Since two decade changes in the pattern of cancer has been observed particularly in female cancer. So this retrospective study was conducted to observe the changing pattern of female cancer during last 10 years in our center.

Aim and Objectives

Aim of this study was to observe the changing pattern in female cancer incidence as per age (age shifting) and as per site during last 10 years that is from 2010-2019.

2. Material and methods

We conducted this study retrospectively, for which all female patients of above 18 years of age, enrolled in department for treatment from January 2010 to December 2019 were taken for analysis. Patient's details were taken from the individual record files. All patients were grouped in different age groups and as per site of primary malignancy. After recording patient's details following observations were done.

3. Results

Following observation were achieved after complete analysis of the data.

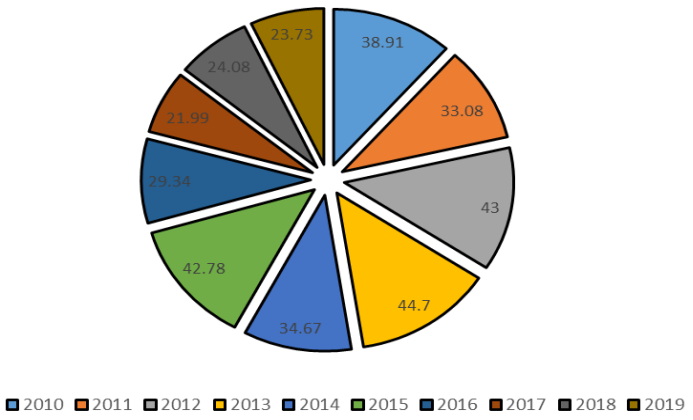

Figure 1 Incidence of female cancer per year during last 10 years

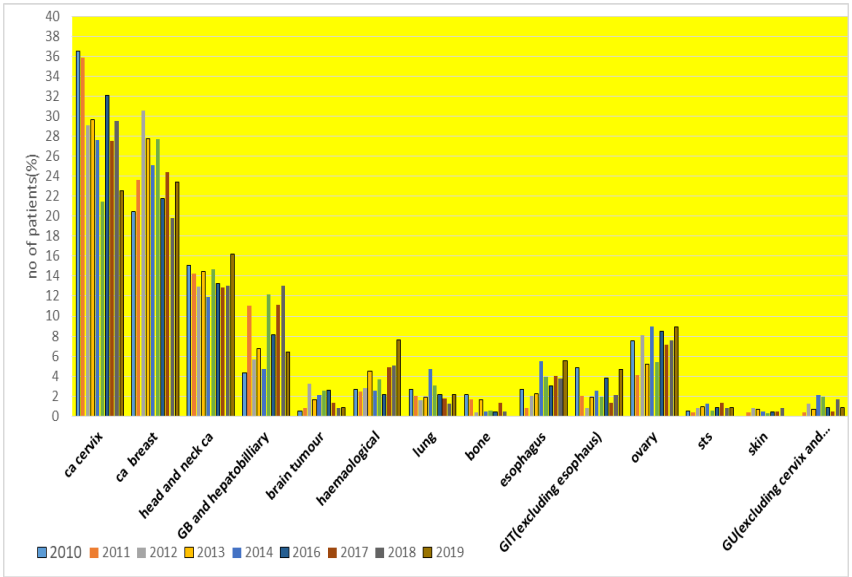

Figure 2 Graph showing different trends of cumulated female malignancies during last 10 years.

Initially up to 6 years there was a rising pattern in incidence of female cancer presenting in the department but since recent 4 years a decreasing trend has been observed in overall female cancer incidence per year as compared to male cancer incidence.

There is a decreasing trend in ca cervix incidence while an increasing trend has been observed in ca breast cases. There was an increasing trend in ca esophagus, gastro-biliary cancer and hematological malignancies also. Remaining sites showed a variable pattern of incidence.

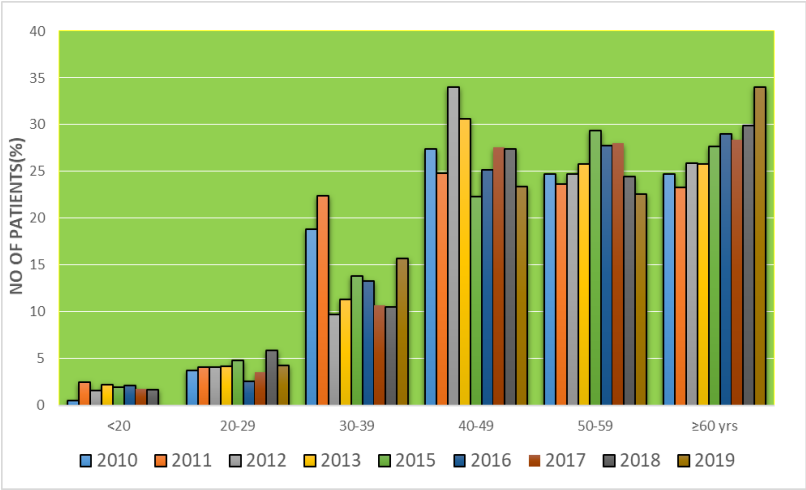

Figure 3 Change in Overall female Cancer Pattern as Per Presenting Age Group.

Maximum rise of cancer incidence has been observed in 6th decade or after that, though patients under 20 years of age were also found to be on increasing trend. Rest other age groups showed a mixed pattern of changes. According to observation maximum no. of patients presenting in our department belonged to 40-49 years age group and at or after 60 years of age.

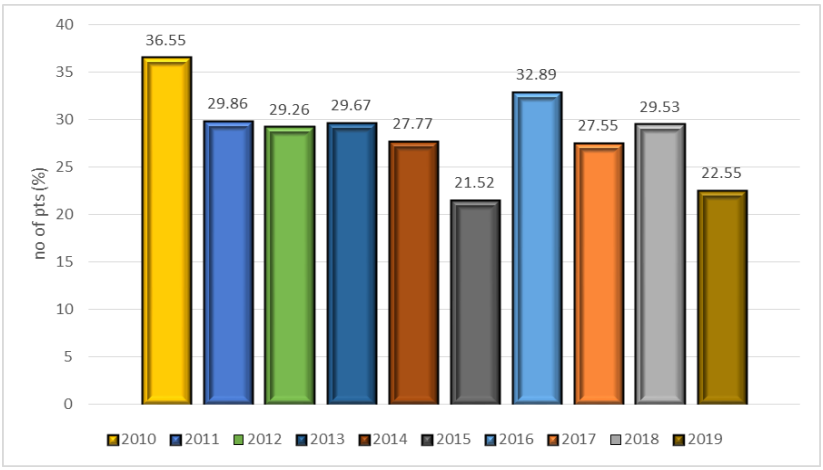

Figure 4 Change in pattern of ca cervix incidence during last 10 years

Ca cervix showed a decreasing pattern except rise in 2016 and 2018.

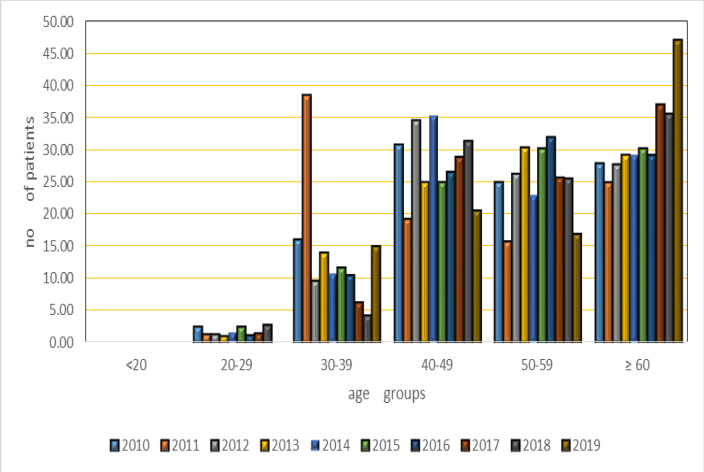

Figure 5 Change in pattern of Ca cervix as per age group

It has been observed that ca cervix has shown a steady rise at and above 60 years of age. While decreasing trend has been observed in 4th and 5th decade.

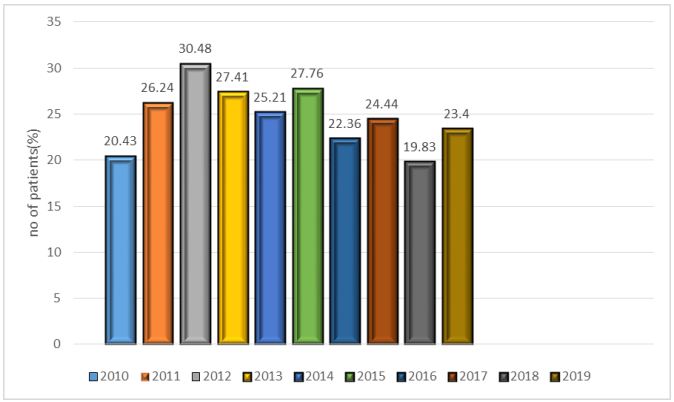

Figure 6 Change in pattern of ca Breast incidence during last 10 years

There is again a mixed pattern in incidence of ca breast but seems to be on slightly increasing trend.

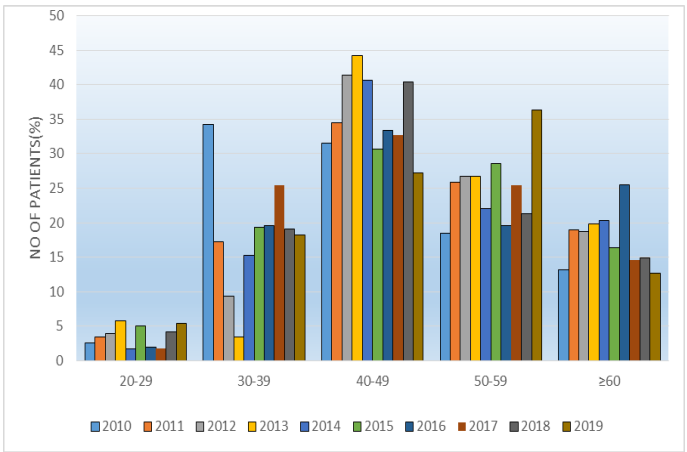

Figure 7 Change in pattern of Ca Breast as per age group

There is an increasing trend of ca breast in 4th and 5th decade. Maximum no.of patients also belong to these age group.

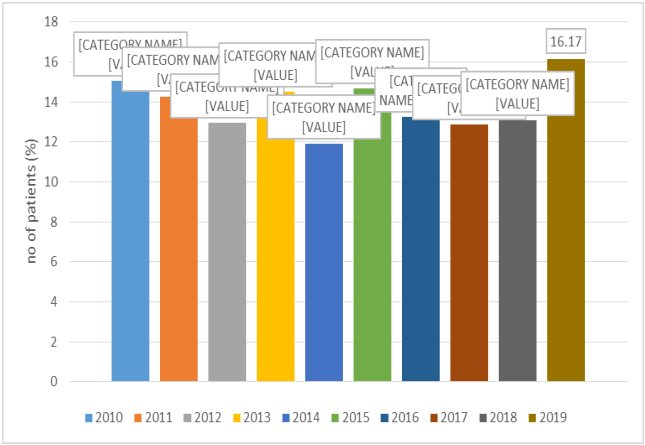

Figure 8 Change in pattern of head and neck carcinoma incidence during last 10 years

There was slight decreasing trend in female head and neck cancer but in recent year rise in incidence has been observed.

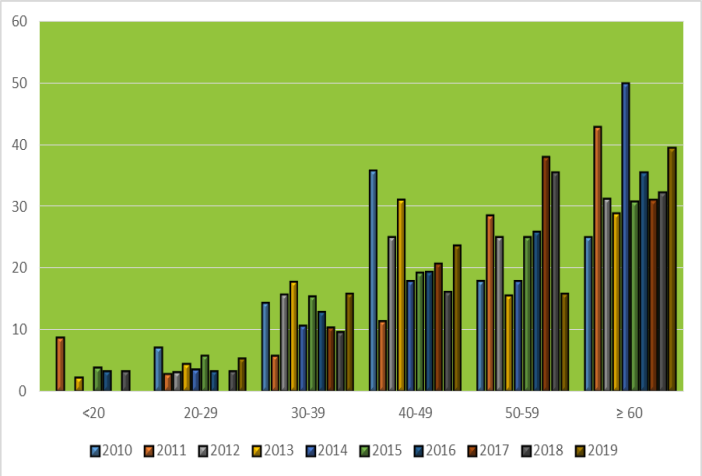

Figure 9 Change in pattern of head and neck carcinoma as per age group.

Increasing trend has been observed at or above 6th decade while 4th and 5th decade showed fluctuating pattern.

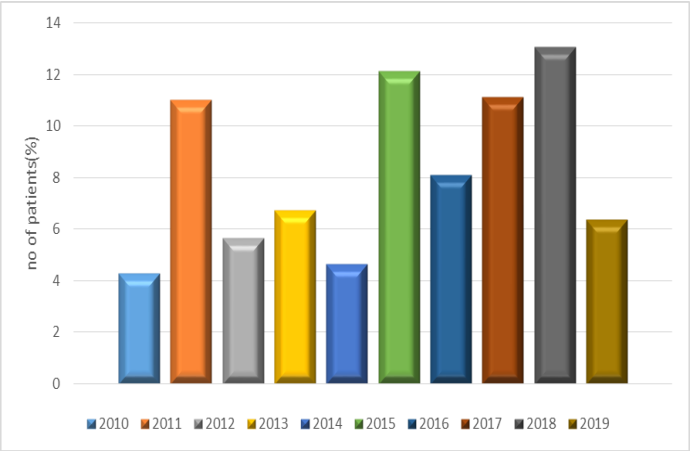

Figure 10 Change in pattern of Ca gallbladder incidence during last 10 years.

Ca Gallbladder showing a rising pattern in every 3rd or 4th year.

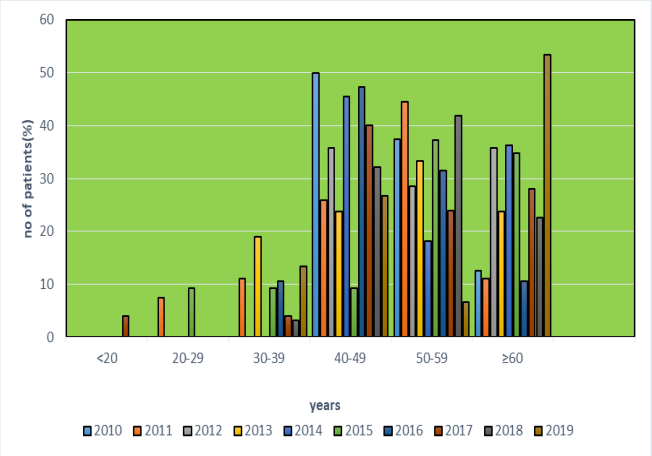

Figure 11 Change in pattern of Ca gallbladder as per age group

Ca gallbladder trend is shifting towards 6th or above though 5th decade is following the same pattern with exception of year 2019.

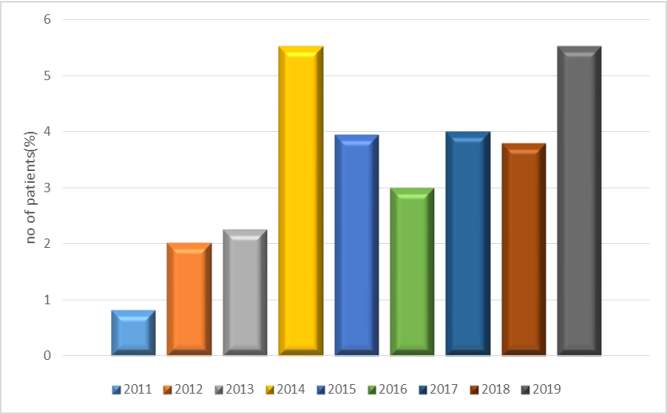

Figure 12 Change in pattern of ca esophagus incidence during last 10 years.

Ca esophagus is on increasing trend during last 10 years

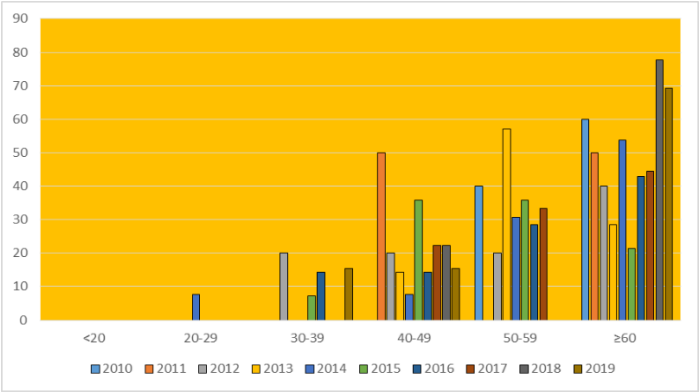

Figure 13 Change in pattern of Ca esophagus as per age group

Rising pattern has been seen in 6th or above decade. Though 5th decade was also a vulnerable group.

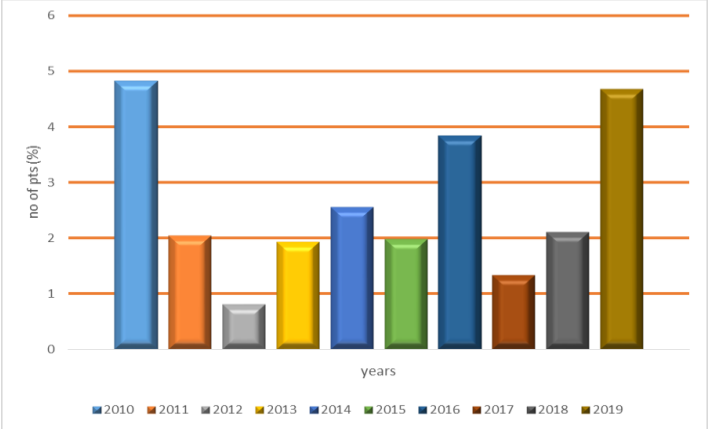

Figure 14 Change in pattern of GI cancer (excluding ca esophagus) incidence during last 10 years.

After a fluctuating pattern, now GI cancer seems to be on rise.

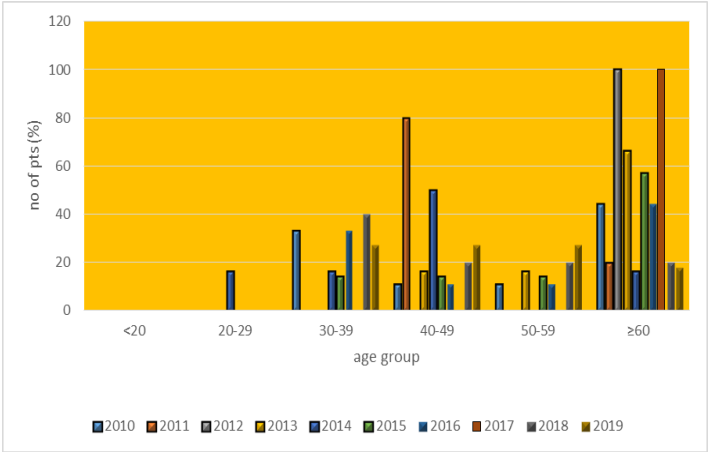

Figure 15 Change in pattern of GI cancer (excluding ca esophagus) as per age group

A rising pattern has been observed in 2nd decade and 5th decade though incidence in 6th decade seems to be on decreasing pattern after a rise in previous years.

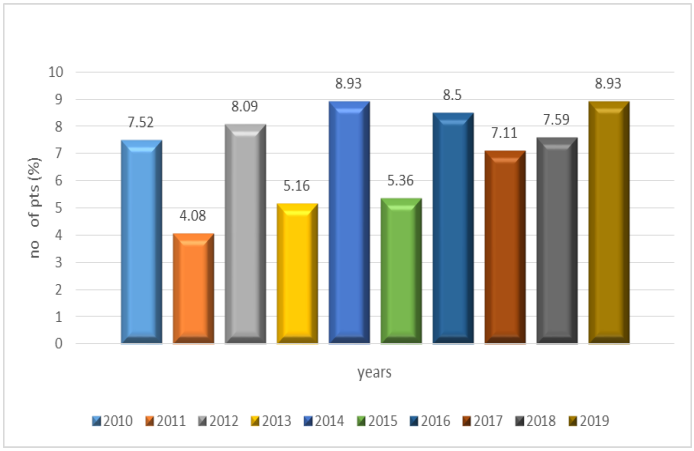

Figure 16 Change in pattern of Ca ovary incidence during last 10 years.

After a fluctuating pattern, ca ovary is again on increasing trend.

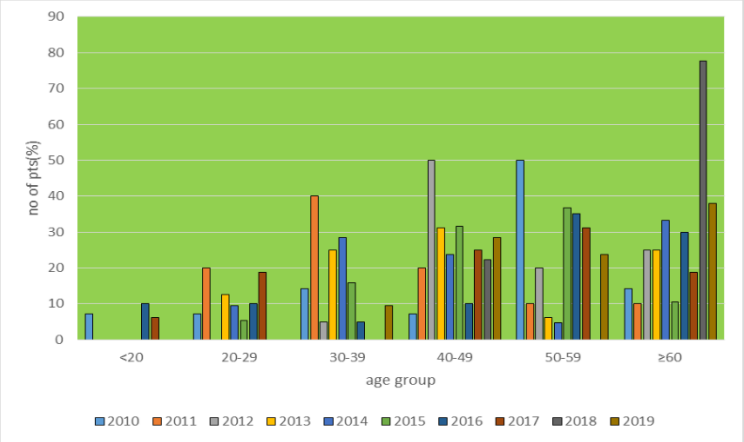

Figure 17 Change in pattern of ca ovary as per age group

A rising pattern has been observed in 6th decade and 2nd and 4th decade also.

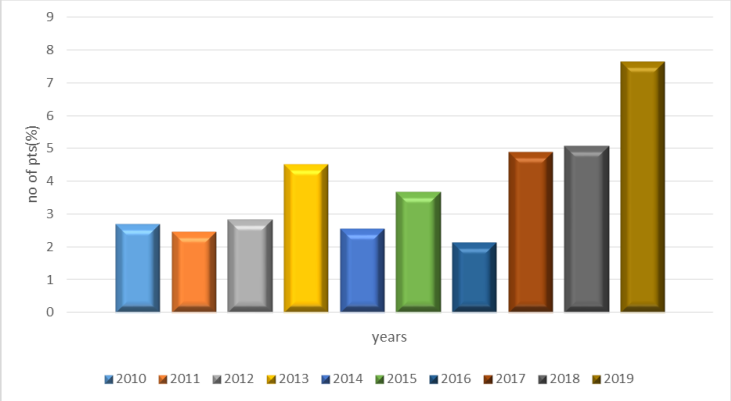

Figure 18 Change in pattern of haematological malignancy during last 10 years.

Since 3 consecutive years there is a sudden rise in incidence of female hematological malignancies

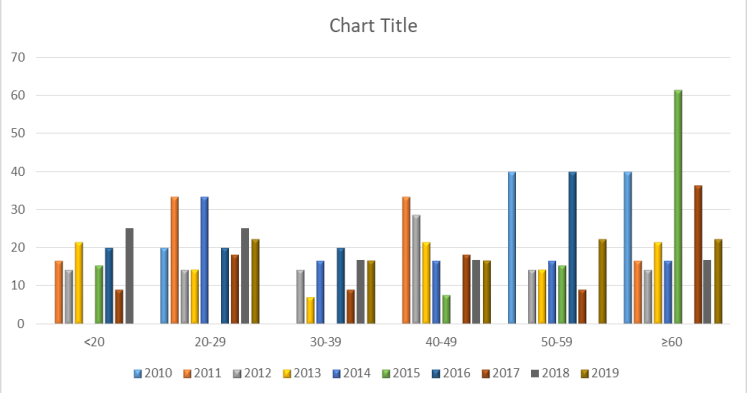

Figure 19 Change in pattern of hematological malignancies as per age group

As per consideration of age there is a mixed pattern of presentation but increasing trend is seen in 18 or 19 yrs. of age.

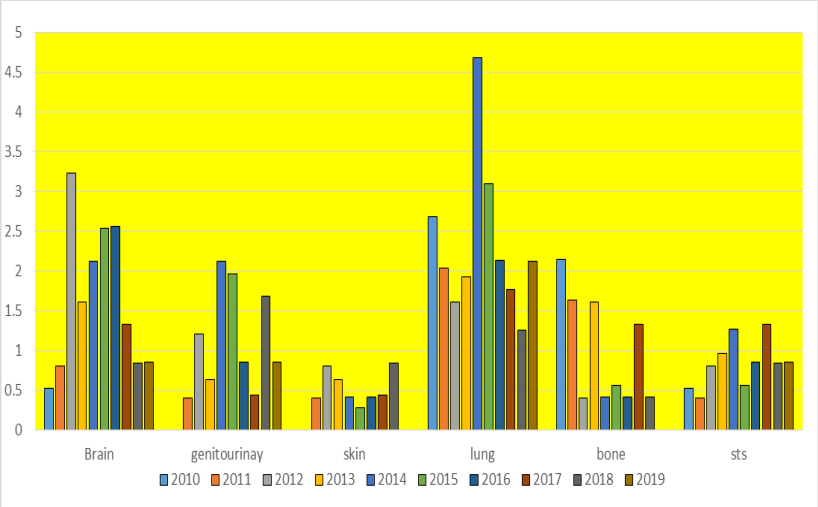

Figure 20 Change in pattern of other malignancy during last 10 years

In case of other malignancies, lung cancer is on slightly decreasing pattern. Bone tumor has shown a decreasing pattern. While soft tissue sarcoma is on rising pattern. Brain tumor showed a sudden rise in incidence with a decreasing pattern in recent years. Genitourinary malignancy excluding ca cervix and ca ovary showed a mixed pattern while skin malignancy is on slightly increasing trend.

4. Discussion

During the last 20 years, India has emerged as a fast growing economy with changes in lifestyle-related behavior partially responsible for the increasing cancer burden [6]. Cancer incidence rates, while still lower compared with many western countries have been changing over recent decades [7]. Initially up to 6 years there was a rising pattern but since recent 4 years a decreasing trend has been observed in overall female cancer incidence per year as compared to male cancer incidence. Maximum rise of cancer incidence has been observed in 6th decade or after that. According to observation from this study maximum no.of patients presenting in our department belonged to 40-49 years age group.6th decade and onward patients were on second no.for presenting age group followed by 5th decade.

In our institution, carcinoma cervix is still most common female cancer followed by carcinoma breast, which is the second commonest female cancer. Though in year 2019, breast cancer succeeded carcinoma cervix. Hepatobilliary (especially ca gallbladder) cancer is the 3rd most common cancer in our center followed by carcinoma ovary.

In our study, while observing the ca cervix pattern, it was seen that ca cervix is on decreasing trend as compared from previous years and that the pattern of incidence is moving from 4th decade to 6th decade. In our study, in case of ca breast, there was a fluctuating pattern followed by increasing trend and this increasing trend is observed in 4th decade and 5th decade. The specific studies conducted on time trends in India have reported statistically significant increases for female breast cancer, alongside significant decreases in cervical and mouth cancer, with little change in ovarian cancer [8]. Breast cancer incidence trends have increased in all urban registries in India over the last 20 years; this phenomenon is also seen for the rural population of Barshi [9]. In contrast, cervical cancer rates are uniformly decreasing in all urban and rural registries [9]. As per observation from this study, there was an increasing trend in ca esophagus, ca ovary and hematological malignancies also. Remaining sites showed a variable pattern of incidence. In our study head and neck cancer was on decreasing trend with exception of year 2019 and lower GI cancer is showing an increasing trend every 3rd year.

The detailed epidemiology of 28 types of cancer in every state of India over a quarter century described in various reports highlight the substantial variations between the states for the different types of cancer, and can serve as a useful reference for more targeted planning of cancer control that is commensurate with the trends of different cancers in each state of India [10, 11]. In our study, the current analysis of time trend for breast cancer, esophagus cancer, ca gallbladder and lower GI cancer clearly identifies needs for the control of these malignancies at the primary, secondary and tertiary level in India. With modification of lifestyle, control of obesity and detecting cases at early stages via the promotion of self-breast examination or clinical breast examination, endoscopic examination and abdomino-pelvic ultrasound, the prevalence and mortality due to these malignancies can be reduced.

5. Conclusion

The increasing overall cancer burden in India should emphasize more systematic and large-scale approaches to reduce this burden at the population level across the country. These approaches should focus on the cancers which are on increasing trend in a particular region or zone so that evidence-based policy decision on steps for cancer prevention and cancer control can be formulated. Further studies are required to identify effects of calendar period on trends in cancer in India so as to undertake informed and multidisciplinary approach including awareness programs, preventive measures, screening programs for early detection and availability of treatment facilities which are vital for reducing both incidence and mortality of cancer in Indian women.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

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