

Original Article

Epidemiology of Cancers in Vidarbha Over 4-year Period, Tobacco-related Cancer and Control

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ABSTRACT

Objectives: The aim of the study was to describe epidemiology of cancer in Vidarbha, according to findings from National Cancer Registry Programme (NCRP).

Material and Methods: The data on cancer have been sourced from Hospital Based Cancer Registries of Rashtrasant Tukdoji Cancer Hospital and Research Centre under NCRP in Vidarbha. The data are covering a period of 4 years (2017–2020).

Results: The Hospital-based cancer Registry of Rashtrasant Tukdoji Cancer Hospital and Research Center indicates 11,868 malignant cases registered in the hospital during the period of past years (2017–2020). The top 5 leading sites in males were buccal mucosa, tongue, lung, alveolus and oesophagus. In females, top 5 leading sites are buccal mucosa, tongue, oesophagus, lung and alveolus. The Rashtrasant Tukdoji Cancer Hospital data of cumulative distribution of cancer cases according to age and gender which cancer was found to be more in males than females and increased incidence in younger ages is observed in the study.

Conclusion: Epidemiological studies help in assessing cancers and help to assess their risk factors and help in improving and strengthening efforts for cancer prevention and control. Epidemiological studies show that many cancer can be avoidable with primary and secondary preventive measures and also helps in estimating the cancer burden in the near future and helps in planning and evaluating strategies by keeping track of cancer prevalence. Cancer registry plays an important role in such studies.

Keywords: Epidemiology, Central India, Cancer, Registry, Vidarbha

INTRODUCTION

Despite the advances in diagnosis, the cancer burden increasing due to lifestyle factors. The major preventable risk factors of cancer are tobacco, alcohol consumption and dietary habits.

Tobacco is a huge public health enemy worldwide and more than 8 million deaths can be seen each year.^[1] India is considered as the Global epicentre for Oral cancer patients and there is an increase in the problem day by day.^[2] The death proportion in India due to tobacco use has increased from 10% in 1990 to 13% in 2019.^[3] In tobacco use, India ranks second after China, though there is decrease of 4.5% in smokeless and 3.3% decrease in smoked tobacco use.^[4]

Central India, Vidarbha region is addicted to tobacco in some or the other form. Among the risk factors for oral cancer, the most preventable risk factor is tobacco use and this control can decrease the cancer risk.^[5] The awareness about tobacco should be made and prevention is must in battle against hazardous effects of tobacco.

Tobacco consumption in central India is 54.4% in males and 40% in females.^[6] Maharashtra's average percentage of tobacco consumption is 44.7%.^[7] In Rajasthan, it is 39% in urban men and 19% in urban females and in Delhi and Mumbai, it is found to be more among men.^[8] Vidarbha is considered as the 'Kharra Capital' of the country. In Vidarbha, 48.3% of men and 13.3% of women consume tobacco in any form that is, kharra, cigarette, beedi.

The present study describes epidemiology of cancer according to findings of National Cancer Registry Programme (NCRP) report (2017–2020).

MATERIAL AND METHODS

Source of data

Data collection for present study is from Hospital-based Cancer Registries (HBCR) and Population-based Cancer Registries' 'Standard form' of Rashtra Sant Tukdoji-Regional Cancer

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Hospital (RST-RCH) which were designed by NCRP and filled by trained registry staff with inputs from surgeons, physicians, oncologists and pathologists. Data that are collected in this way are entered into developed software and sent to Bangalore.

Hospital based data

The data on cancer have been sourced from HBCR of Rashtrasant Tukdoji Cancer Hospital and Research Centre under National Cancer Registry Programme Vidarbha. The data are covering a period of 4 years (2017–2020).

The data abstraction and entry are done using the hospital file records. Data are collected and entered into the computer at the time of new patient registration at Rashtra Sant Tukdoji (RST) Hospital and transfer to the core-proforma of the NCRP of Indian Council of Medical Research (ICMR). The data transfer of the ICMR Core proforma first part (demographic details) and second part (diagnostic treatment and follow-up details) is entered using the ICMR Software after retrieving case sheets from the RST Medical Records division. All variables in the core pro forma except age and various dates are directly selected. The selection box contains all the codes along with their description for each variable. Hence, this helps to avoid mistakes beyond the range of values for each variable. The selection box corresponding to the variable topography and morphology contains the third edition of international classification of diseases of oncology 3 and the international classification of diseases 10.

RESULTS

Leading sites of cancers in 2017–2020

A total of 19,291 cancer cases were registered during the period of 2017–2020 out of which 11,868 malignant cases were registered. Of those, 6042 (50.91%) were males and 5823 (49.07%) were females. The leading sites of cancer cases for the period 2017–2020 are shown in Table 1 and Figure

1. The cumulative top 5 cancers in males during period of 4 years were oral (51.92%), lung (5.41%), oesophagus (4.73%), brain (3.20%), larynx (3.08%) and the cumulative top 5 cancers in female were breast (26.97%), cervix uteri (21.76%), oral (14.97%), ovary (5.18%) and oesophagus (4.32%).

The top cancer in males and females in Vidarbha region was in common with the top cancers of India, namely oral cancer in males and Breast cancer in females. The top 5 cancers in India among males were oral, lung, stomach, colorectal, and oesophagus and the top 5 cancers among females in India were breast, oral, cervix, lung and stomach.

In males, lung cancer causes more than 25% of cancer deaths and in females breast and oral cancer cause more than 25% of cancer deaths in India.

Distribution of registered cancer cases according to gender and age

The frequency distribution of cumulative cancer cases registered in RST-RCH in Vidarbha in the period 2017–2020 according to age is demonstrated in Table 2. The age-wise comparison of incidence of cancer in 2017–2020 is shown in Figure 2.

About 2/3rd of cases registered in 2017 are in age group of >50 years and in 2020 are in the age group of >40 years.

The least number of cases are found to be in age group of 0–10 years.

DISCUSSION

This descriptive epidemiological study includes all cancer cases registered in cancer registry data from 2017 to 2020. A total of cases registered were 19,291 and of which malignant were 11,866.

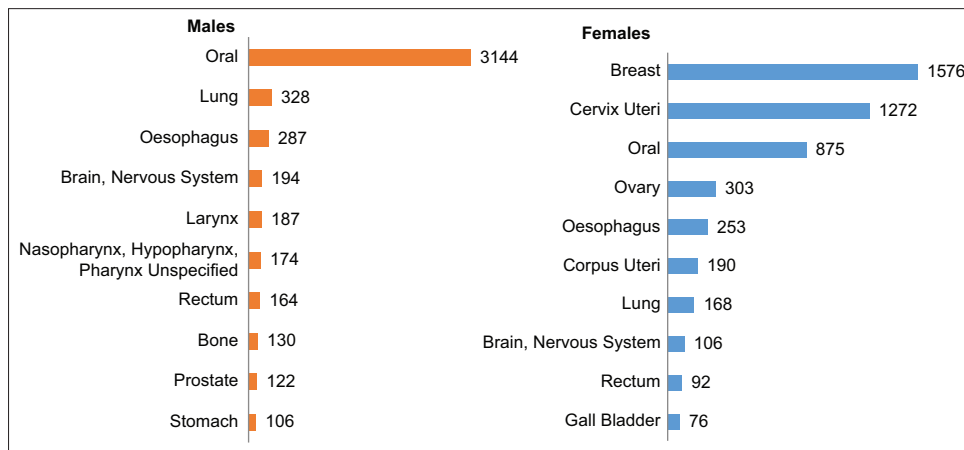
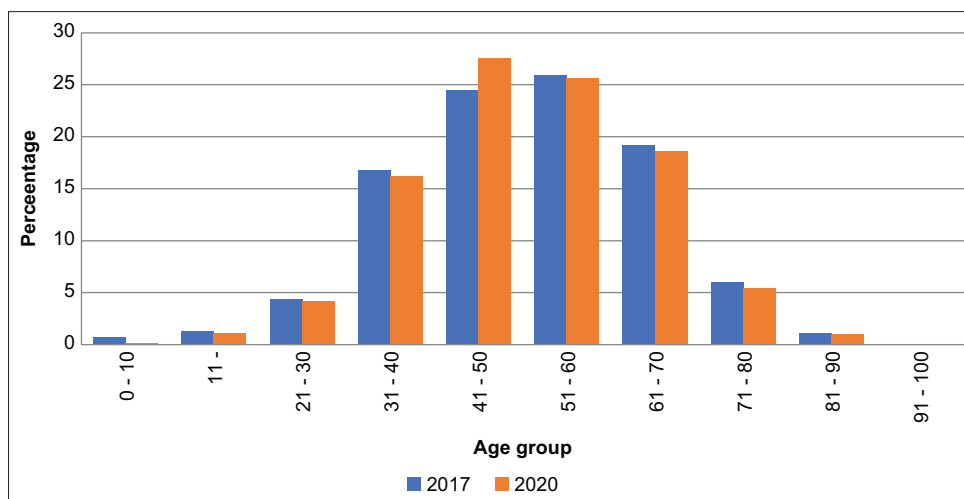
Table 1: Proportion of top 10 leading sites of cancer in Rashtra Sant Tukdoji-Regional Cancer Hospital (RST-RCH) for period 2017–2020 in males and females.

ICD10	Site	Males			Females				
		Number	%	CR	ICD10	Site	Number	%	CR
C00–C10	Oral	3144	51.92	0.5	C50	Breast	1576	26.97	0.2
C33–C34	Lung	328	5.41	0.05	C53	Cervix uteri	1272	21.76	0.2
C15	Esophagus	287	4.73	0.09	C00–C10	Oral	875	14.97	0.15
C70–C72	Brain, nervous system	194	3.20	0.03	C56	Ovary	303	5.18	0.05
C32	Larynx	187	3.08	0.03	C15	Esophagus	253	4.32	0.04
C11–C14	Nasopharynx, hypopharynx, pharynx unspecified	174	2.87	0.02	C54	Corpus uteri	190	3.25	0.03
C19–C20	Rectum	164	2.70	0.02	C33–34	Lung	168	2.87	0.02
C40–C41	Bone marrow	130	2.14	0.02	C70–72	Brain, nervous system	106	1.81	0.01
C61	Prostate	122	2.01	0.02	C19–C20	Rectum	92	1.57	0.01
C16	Stomach	106	1.75	0.01	C23–24	Gall bladder	76	1.30	0.01

ICD10: International classification of diseases, CR: Crude rate

Table 2: The distribution of cumulative cancer cases registered by cancer registry in Rashtra Sant Tukdoji-Regional Cancer Hospital (RST-RCH) in Vidarbha in the period 2017–2020.

Age group	2017		2018		2019		2020	
	Number	%	Number	%	Number	%	Number	%
0–10	22	0.7035497	21	0.6218537	9	0.3140265	4	0.1603206
11–20	41	1.3111609	85	2.5170269	34	1.1863224	29	1.1623246
21–30	136	4.3492165	170	5.0340539	122	4.2568039	105	4.2084168
31–40	525	16.789255	568	16.819662	446	15.561759	404	16.192385
41–50	766	24.496322	849	25.140657	748	26.099093	687	27.53507
51–60	811	25.935401	843	24.962985	743	25.924634	640	25.651303
61–70	600	19.187719	614	18.181818	574	20.027913	465	18.637275
71–80	189	6.0441317	201	5.9520284	166	5.7920447	136	5.4509018
81–90	35	1.1192836	25	0.740302	24	0.837404	25	1.002004
91–100	2	0.063959	1	0.0296121	0	0	0	0
Total	3127	100	3377	100	2866	100	2495	100

**Figure 1:** Estimated proportion of Top 10 leading sites of cancer in Rashtra Sant Tukdoji-Regional Cancer Hospital (RST-RCH) for period 2017–2020 in males and females.**Figure 2:** Estimated age-wise comparison of incidence of cancer in 2017–2020.

The most frequent cancer cases during our study according to Cancer Registry data in males are oral (51.92%), lung (5.41%), oesophagus (4.73%), brain (3.20%), larynx (3.08%) and among females breast (26.97%), cervix uteri

(21.76%), oral (14.97%), ovary (5.18%) and oesophagus (4.32%).

On cumulative basis, cancer is higher in males compared to females in Central India; this is because of highest number of oral cancer cases among males because of tobacco usage excessively due to ignorance of risk factors and lack of proper education. Tobacco control is must in Vidharbha as it is consumed since very young age though government is implementing many acts but despite following very strict rules on legalisation of tobacco sales and banning tobacco advertisements and banning smoking in public still, many more preventive measures should be taken very strictly.

This study shows that the major cancer among females is of breast cancer 1576 cases that is, 26% of total malignant cases in females. Hence, its prevention is must. This can only be done by getting screened early. Family members of the breast cancer patient should also be screened compulsorily. Risk factors also should be made aware to women and healthy lifestyles, physical activities, preventing smoking, and avoiding contraceptive pills after age 35, should be followed.

According to our study, in females, increasing incidence of cervix cancer is more this is because of lack of awareness about risk factors such as use of contraceptive pills, human papillomavirus (HPV), and multiple sexual partners. Cervix cancer can be prevented by launching various awareness cancer campaigns and early detection. Women should be given knowledge about HPV vaccination and awareness about PAP smear screening every 3 years after the age of 30.

This study shows increase in incidence of cases with age, mostly at the age of 40 years and the highest number of cases that is, almost 2/3rd of cases occurred between 4th and 6th decades and after that cases declined at age group of 80 this is because survival rates and life expectancy has been decreased in our country due to unhealthy lifestyle.

The data of 2017 show cancer cases found to be mostly between 5th and 6th decades but in 2020 study highest cases are found to be between 40 and 50 years that is, 4th and 5th decades. These clearly show cancer incidence started increasing more in young people that is, 40–50 years age group. This difference in cancer incidence might be related to magnitude of risk factors such as unhealthy diet, unhealthy lifestyle, tobacco smoking, lack of physical activity, environmental pollution, and lack of education about risk factors and their effects.

The discussion stress is mostly on burden of certain cancers such as oral, mostly tobacco-related, breast cancer and cervix cancer in Vidarbha and which is a burden globally in India as well.

It is needed to conduct cost-effective studies and screening programmes for early detection to reduce morbidity and

mortality. It is necessary to work on already known risk factors prevailing and primary preventive measures such as smoking cessation, physical activity, nutrition, healthy diet, vaccination and secondary prevention including screening and early detection.

This study concludes cancer is increasing steadily year by year. According to report of NCRP annual report 2020, it has shown that Mouth cancer significant increase by 9.4% and 6.5% annually in males and females, respectively, and tongue cancer showed significant increase of 6% annually for period 2005 and 2016 in Nagpur Vidarbha region according to cancer registry data. By this, it can be concluded that the incidence of cancer burden can be estimated to be increased to 12.5% by 2025 compared to earlier data.

CONCLUSION

In summary, the study shows epidemiology of distribution of cancer in Vidarbha according to age and gender and leading cancers and preventive measures. Cancer increased incidence found among younger people compared to the previous years. Hence, efforts to be increased to overcome cancer incidence in early stages which can be only made by bringing awareness to the people regarding the risk factors and several screening programmes and awareness campaigns and a lot of research studies to be made.

Acknowledgment

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Ethical approval

The Institutional Review Board approval is not required since it was a retrospective study.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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