



Common Cancer Trends in Eastern India: A Retrospective Study

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Abstract

Background: Global burden of cancer is expected to be 28.4 million cases in 2040 with a 47% rise as compared to 2020. An estimated 19.3 million new cancer cases and almost 10 million cancer deaths occurred in 2020 worldwide (GLOBOCAN 2020). Nowadays Female Breast cancer is the most common cancer with an estimated 2.3 million new cases. National Cancer Registry Programme report shown cancer incidence is seven times higher in Aizwal district than Osmanabad district. Rising cancer incidence creates a tremendous burden on people economic condition and health condition. Cancer registries are helpful to estimate the cancer burden and prepare the health system to make programme and policies for awareness, prevention, and treatment of cancer.

Material and Method: Our Institute is situated in Patna (Bihar). We have registered every case prospectively in Hospital Based Cancer Registry. The demographic profile of each patient is registered since 2014 to 2021.

Result: We analysed data of 15 common cancer a total of 32057 cases. 8-year data was compiled which were registered since Jan 2014 to Dec 2021. A total of 32057 cases were registered in which 16232 (50.78%) were males and 15825 (49.37%) were females. Overall, the most common cancer was Carcinoma Gall Bladder (4204) 13% in these years with common age of diagnosis was 50-60 years (Median age is 55 years) which comprises 1748 cases (41.5%) male: female ratio is 0.55.

Keywords: Common Cancer Trends; Carcinoma Gall Bladder; Breast Cancer

Introduction

Global burden of cancer is expected to be 28.4 million cases in 2040 with a 47% rise as compared to 2020. An estimated 19.3 million new cancer cases and almost 10 million cancer deaths occurred in 2020 worldwide (GLOBOCAN 2020). Nowadays Female Breast cancer is the most common cancer with an estimated 2.3 million new cases (11.7%) followed by carcinoma lung (11.4%), 3rd most common cancer is Carcinoma colorectal (10%) and with is Carcinoma prostate 73% and stomach (5.6%). The most common cancer death is carcinoma lung with an estimated 1.8 million (18%) stomach (7.7%) female breast cancer 6.9%. (GLOBOCAN 2020) [1].

India has a wide heterogeneity in its geographical variation of incidence of cancer [2-4]. National Cancer Registry Programme report shown cancer incidence is seven times higher in Aizwal district than Osmanabad district [5-12].

Rising cancer incidence creates a tremendous burden on people economic condition and health condition [13]. Cancer registries are helpful to estimate the cancer burden and prepare the health system to make programme and policies for awareness, prevention and treatment of cancer.

During the past 20 years India has emerged as a fast-growing economy. Changes in life style, food habits have also changed with growth and is responsible for increased cancer burden [14]. Disease is responsible for mortality in rural and urban India [15].

Hospital based Cancer Registry Programme has been started in our Institute since 2014. We analysed data from our Hospital Based Cancer Registry over the past 9 years to learn the trend of new cancer Registry in our State Cancer Institute.

Material and Methods

Our Institute is situated in Patna (Bihar). We have registered every case prospectively in Hospital Based Cancer Registry. The demographic profile of each patient is registered since 2014 to 2021. It was analysed and patient were grouped according to their age, sex and site of cancer and type of cancer, age distribution and gender stratification was done according to site.

Result

We analysed data of 15 common cancer a total of 32057 cases. 8-year data was compiled which were registered since Jan 2014 to Dec 2021. A total of 32057 cases were registered in which 16232 (50.78%) were males and 15825 (49.37%) were females.

Overall, the most common cancer was Carcinoma Gall Bladder (4204) 13% in these years with common age of diagnosis was 50-60 years (Median age is 55 years) which comprises of 1505 Male and 2699 Female. male: female ratio is 1: 0.55.

2nd most common cancer was Carcinoma Head and neck which includes of 3395 case, 10.36% of total cases median age was 53 year, most common age group was 50-60 years comprising 1365 case, Male: Female ratio was 4.2:1. The most common cancer in female was carcinoma breast 3548 (9.5%) and 2nd most common cancer was Carcinoma gallbladder cancer with 2683 (7.2%) cases. 4th most common was haematolymphoid.

Common age group in haematolymphoid cases was 25 to 35 years. (601/2280) This malignancy commonly affects younger groups. 58 cases were reported 0-4 years. Other cases like liver cancer were 4.8% of total cancer and most common cancer age group was 50-60 years (707/1794).

Since 2014 there is increasing trend of cases seen in case registry till 2017 (0.6% - 3%) after 2017 there is some decrease in registration in 2018 and due to non-renewal of project there were 5 months of gap of registration in 2019. Year 2020 affected by Covid Pandemic; registration has been reduced up to from 9%-17% in all cases. Total cases registered in 2020 were 2694(8.4%), while 3434 (10.71%) in 2018 and 4221(13.16%) in 2017. Again trend shown increasing registrations in 2021 total case were 2921(9.1%).

CA gallbladder

Total cases registered 4204, 13.11% of all cancer cases in which 35.79% were males and 19.92% females and 63.98%. Most common age group was 45 to 54 years with 1121 cases. Literacy rate was only 60%, 45% were up to matric and only 14% were above matric. Adeno carcinoma was commonest histology.

Head and Neck cancer

In younger age group the most common tumour was of nasopharyngeal carcinoma, salivary gland tumor, thyroid carcinoma, rhabdomyosarcoma, esthesioneuroblastoma were found. Hospital based registry programme has been started in 2014 in our hospital. Cancer registries systematically collect, stores, analyses and interpret data of cancer.

Total cases registered were 3395, 10.59% of all cancer cases. Commonest amongst males. 81% were males, 18% were females buccal mucosa was commonest (22.7%) of all Head and Neck cancers. 2nd commonest was carcinoma tongue. Peak age group was 55-64 years.

Carcinoma breast

Total cases registered were 3392 (10.58%) of all cancer cases. Breast cancer contributed 20.8% of all female cancers. Peak age group was 45 to 54 year of age. Most common histology was infiltrating ductal carcinoma followed by ductal carcinoma.

Carcinoma lung

Total cases registered were 2069, 6.45% of all cancer cases. Most common age group was 55-64 years. Literacy rate was 67.3%. 58.8% were males 41.2% were females Adeno carcinoma was commonest pathology 89.9%, squamous cell carcinoma 5.6% and Small Cell Carcinoma 1.8%.

Carcinoma cervix

Total cases registered were 2039. It constituted 6.36% of all female cancers and 12.88% of all genitourinary cancers. Peak age group was 54-54 years. Literacy rate was only 63% squamous cell carcinoma was commonest pathology.

Haematolymphoid

Total cases registered were 1930 (4.9%) in which 65.28% were males, 6% cases were females. Literacy rate was only 60%.

Hepatocellular carcinoma

Total cases were 1572 (4.9%) of all cancer. The most common age group was 60-64 years. Male: Female ratio was 2.1:1. Literacy rate was poor 41.85%, Literacy rate up to matric was 49.68%. Common pathology in younger age group (<20 years) was hepatoblastoma, hepatic carcinoma, infantile choriocarcinoma, embryonal carcinoma, hepatocellular carcinoma was found.

Stomach cancer

Total cases were 1116 (3.47%) of all cancer. Most common age group among the males was 60-64 and 50-54 years in females. Male: Female ratio was 1.5:1(60.8% vs 09.15%) minimum age was 2 years with gastric lymphoma and maximum age was 89 years with stomach Cancer. Literacy rate 11.2% more than matric 62.3% upto matric and 26.3% were illiterate. Common histopathology was also registered as Adenocarcinoma. Same case of, neuro endocrine tumor, gastric signaturing carcinoma.

Ovarian cancer

Total cases were 1104 (3.44%) of all cancer. Common age group affected was 45-49 years, Minimum age was 10 years with cases of ovarian cancer, Maximum age was 88 years with patient of carcinoma ovary. Literacy rate was very poor 31.45% patients were illiterate, 60.29% patients were up to matric. Adenocarcinoma was commonest pathology.

Colorectal cancer

Total 1028 (3.2%) cases were registered in which 704 were males and 319 were females 98.4% cases shown adenocarcinoma.

Bone marrow tumours

Total 1023 (3.1%) cases were registered in which 648 were males and 380 were females 60-70 years was commonest age group.

Kidney cancer

Total cases registered were 612 (1.9%) in which 66.5% were males 33.5% were females. Commonest age group was 35-60 years. Literacy rate shown 71%.

Brain tumours

Total cases registered were 543 (1.4%) in which 65.5% were males 34.5% were females. Commonest age group was 40 to 60 years. Commonest histopathology was glioblastoma 59%, astrocytoma 13%, glioma 10%. Literacy rate shown 68%.

Prostate cancer

Total 468 (1.4%) cases were registered, commonest age group was more than 60 years. Literacy rate shown 62.8% commonest histology shown adenocarcinoma.

Pancreas

Total 448 (1.39%) cases were registered 56.9% were males and 43% females. Commonest age group was 50-60 years. Adenocarcinoma was commonest histology (98.21%).

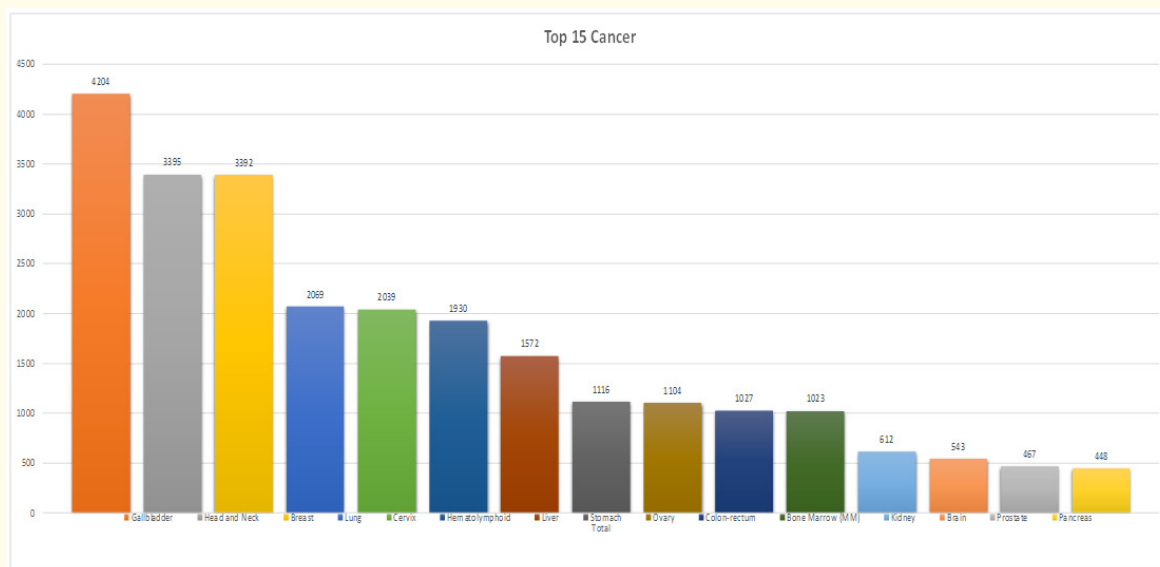
Childhood cancer

Childhood cancer (0-14 years) 1524 cases which were 4.10% of all cancer cases. In males head and neck cancer were most common 19.06% in 2022 and in females 80.94% were reported in males, and in females carcinoma breast was most common 9.5% of all cancer in females, cancer breast, cancer ovary, cancer cervix accounted 20.38% of cases in all the total cases. Median age of diagnosis was 49.5 years among all cancers. In colorectal cancer, 10th in position total cases registered 3.1% (1177) of total cases.

Discussion

It is estimated 1.8 million new cases by 2026 in India thus cancer will be the 2nd leading cause of the death after cardiovascular disease [9,16]. The top 10 cancer type account for more than 60% of Cancer in both sexes in newly diagnosed cancer and more than 70% of cancer deaths (GLOBOCAN 2020). A steady increase of an estimated 0.8 million new cancer cases every year. Nearly 2 million new cancer cases and more than one million deaths are expected in 2040 [17]. As per National Cancer Registry Report 7 times higher incidence in Males and 4 times higher incidence is Females reported at Aizwal district of Mizoram than Osmanabad and Beed districts of Maharashtra [8,9]. Most common age group reported in our study

Rank	Topography	Age Group																		Total
		0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85>	
1	Gallbladder	0	0	0	6	38	73	141	265	406	532	589	590	569	456	290	204	42	3	4204
2	Head and neck	1	1	8	24	57	107	203	276	317	372	406	336	465	390	224	179	25	4	3395
3	Breast	0	0	1	2	70	140	270	409	503	561	434	359	276	195	93	45	28	6	3392
4	Lung	0	0	6	12	37	43	48	54	117	189	221	224	346	299	238	198	98	9	2069
5	Cervix	0	0	0	2	11	21	68	145	239	315	299	247	308	181	107	67	24	5	2039
6	Hematolymph-hoid	58	115	118	121	144	161	189	179	179	147	144	121	96	74	48	21	13	2	1930
7	Liver	3	2	1	16	24	51	59	76	128	163	199	184	244	188	150	63	14	7	1572
8	Stomach	0	0	3	14	25	36	40	68	110	134	148	130	162	122	75	29	11	9	1116
9	Ovary	0	0	1	19	30	80	89	118	139	176	126	96	95	58	42	21	12	2	1104
10	Colon-rectum	0	0	3	12	81	78	85	110	112	104	94	93	91	71	53	19	15	6	1027
11	Bone Marrow (MM)	24	29	38	47	40	42	55	52	55	87	117	98	91	122	82	23	16	5	1023
12	Kidney	93	47	19	11	9	19	17	19	32	58	38	67	62	58	38	13	8	4	612
13	Brain	22	27	30	23	24	34	43	58	49	50	37	49	41	28	19	6	1	2	543
14	Prostate	0	0	0	0	1	0	0	1	11	15	24	38	75	100	87	60	39	16	467
15	Pancreas	0	0	1	0	7	10	16	28	43	44	62	52	52	68	37	17	8	3	448
Total		201	221	229	309	598	895	1323	1858	2440	2947	2938	2684	2973	2410	1583	965	284	83	24941



Graph 1: Total No of cases according to type of Cancers.

Sl. No	Disease	Males	%
1	H & N	2752	24.08
2	CA Gallbladder	1505	13.17
3	H & L	1269	11.11
4	Lung	1217	10.65
5	Liver	1073	9.39
6	Colorectal	704	6.16
7	Stomach	679	5.94
8	Bone Marrow	643	5.63
9	Prostate	468	4.10
10	Kidney	407	3.56
11	Brain	356	3.12
12	Ca Pancreas	255	2.23
13	Breast	99	0.87
14	Cervix	0	0.00
15	Ovary	0	0.00
Total		11427	

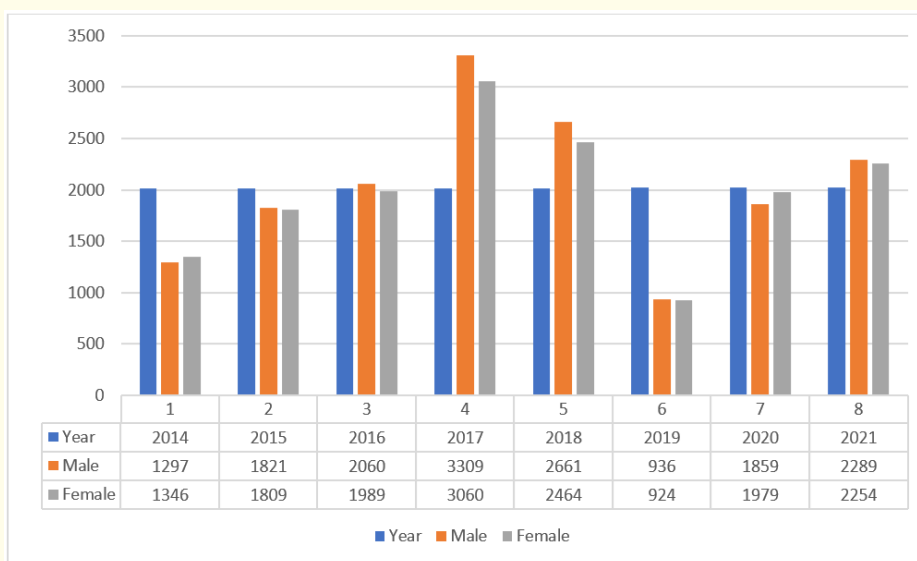
Table 2: Distribution According to no of Male patients according to Disease.

Sl. No	Disease	Females	%
1	Breast	3293	24.39
2	Carcinoma Gallbladder	2690	19.92
3	Cervix	2039	15.10
4	Ovary	1103	8.17
5	Lung	852	6.31
6	H & L	661	4.90
7	H & N	643	4.76
8	Liver	499	3.70
9	Stomach	437	3.24
10	Bone Marrow	380	2.81
11	Colorectal	319	2.36
12	Kidney	205	1.52
13	Ca Pancreas	193	1.43
14	Brain	187	1.39
15	Prostate	0	0.00
Total		13501	

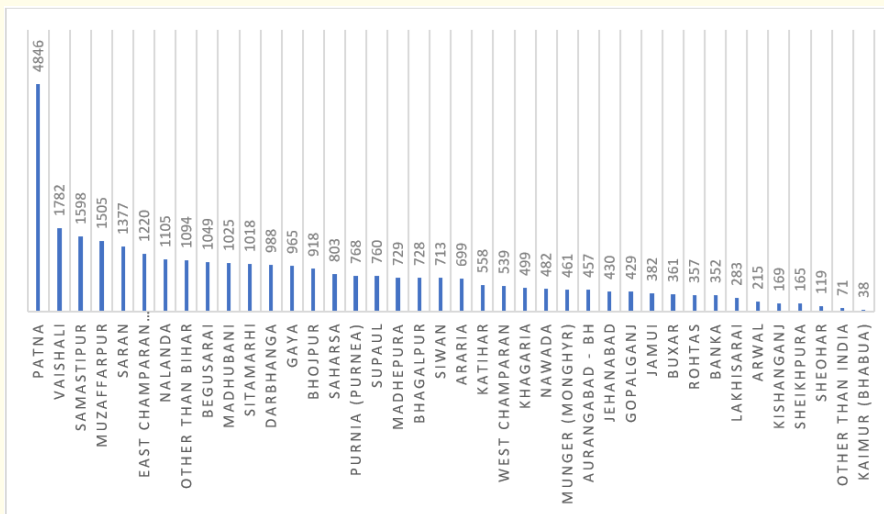
Table 3: Distribution According to no of Female patients According to Disease.

Year	Male	Female	Total
2014	1297	1346	2643
2015	1821	1809	3630
2016	2060	1989	4049
2017	3309	3060	6369
2018	2661	2464	5125
2019	936	924	1860
2020	1859	1979	3838
2021	2289	2254	4543
Total	16232	15825	32057

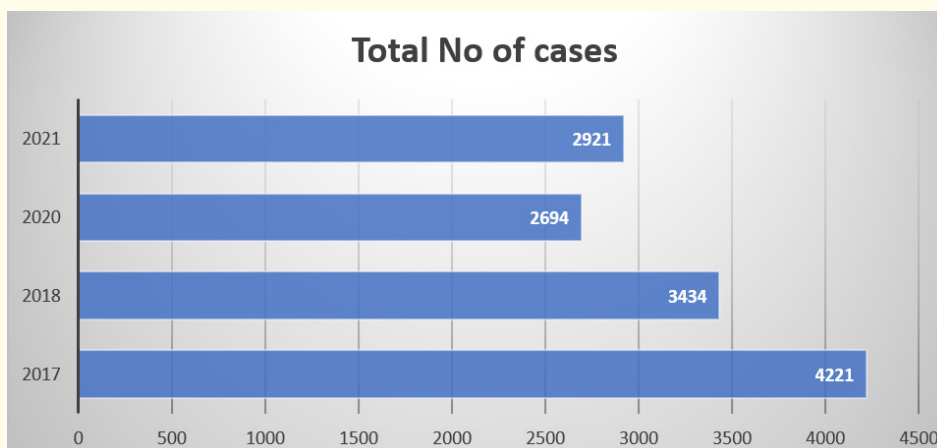
Table 4: Total No of patient year wise data distribution.



Graph 2: Total No of cases year wise data distribution.



Graph 3: Total No of cases District Wise distribution.



Graph 4: Graph of total number of cases year wise distribution.

Sl. No	Disease	Histopathology	Percentage
1	Carcinoma Gall Bladder	Adenocarcinoma	99.3%
2	Head and Neck Cancer	Squamous Cell Carcinoma	98.7%
3	Carcinoma Breast	Infiltrating Duct Carcinoma	63.1%
		Ductal Carcinoma	17.9%
		Duct Cell Carcinoma	15.2%
4	Carcinoma Lung	Adeno Carcinoma	89.9%
		Squamous Cell Carcinoma	5.6%
		Small Cell Carcinoma	1.8%
5	Carcinoma Cervix	Squamous Cell Carcinoma	43.9%
6	Carcinoma Oesophagus	Adenocarcinoma	40%
		Squamous Cell Carcinoma	58.68%
7	Carcinoma Pancreas	Adenocarcinoma	98.21%
8	Carcinoma Ovary	Adenocarcinoma	93.2%
		Germ cell Tumour	1.4%
9	Colorectal Carcinoma	Adenocarcinoma	98.4%
		Mucinous Adenocarcinoma	0.3%
10	Carcinoma Brain	Glioblastoma	59.1%
		Astrocytoma	13.07%
		Glioma	10.1%
11	Carcinoma Cervix	Squamous Cell Carcinoma	62.8%
		Keratinizing Carcinoma	
		Squamous cell Carcinoma (Non-Keratinizing)	32.8%
		Adenocarcinoma	0.5%

12	Carcinoma Liver	Hepatocellular carcinoma	80.5%
		Adenocarcinoma	16.5%
13	Carcinoma Stomach	Adenocarcinoma	95.9%
		Squamous Cell Carcinoma	2.2%
14	Carcinoma Prostrate	Adenocarcinoma	98.00%
15	Kidney Carcinoma	Renal Cell Carcinoma	98%

Table 5: Distribution of Disease according to histopathology and percentage.

Sl. No	Disease	No of Patients	Percentage
1	Buccal Mucosa	771	28%
2	Tongue Carcinoma	717	26%
3	Carcinoma Thyroid	299	10.86%
4	Carcinoma Larynx	180	6.5%
5	Lower Alveolus	152	5.5%
6	Carcinoma Supraglottic	139	5%
7	Carcinoma Parotid	118	4.2%
8	Retinoblastoma	117	4.2%
9	Nasopharynx	93	3.3%
10	Oropharynx	83	3%
11	Submandibular Gland Carcinoma	83	3%

Table 6: Distribution of disease according to number of patients.

was 45 to 55 years of age with 30% followed by 56-66 year of age (24%). In males most common age group was 50-60 years while in females 40 to 50 year. The study conducted by Rana., *et al.* [18] shown 51-60 year of age in females most common age group and 61-70 years was commonest amongst male study done by Bal., *et al.* [19] shown 50-54 years was the commonest age group amongst females and 65-69 years amongst males. In our study 54% were females and 46% males. Male: female ratio was 1:1.7. Other studies done at Malwa region like Bal., *et al.* [19] shown 65% females 35% were male. Thakur., *et al.* [20] shown 74.7% were females, 25.2% were males. Rana., *et al.* [18] shown 60% females and 40% males Agarwal., *et al.* [21] shown 60.9% females, 39.1% were males [18-21] Rana., *et al.*). While study done by Sandhya., *et al.* [22] shown 53.99% were males and 40.01% females in Nellore district Andhra Pradesh. Higher incidence amongst males might be the due to dietary and personal habits like use of spices related to increased risk of gastric cancer and consumption of Tabacco, betel nut related to oral cancers. Worldwide higher incidence rate reported in males at 19% than in females 222 per 1 lakh population in males and 186 per 1 lakh population in females in 2020 [22]. Amongst gynaeco-

logical cancer which were 6435 (20.38%) of all cancers. Commonest cancer in females was carcinoma breast 51.1% followed by carcinoma genital tract carcinoma cervix 31.68%, Ca ovary 17% and Ca gallbladder 19.92%. In males common cancer reported Head and Neck 24%, Carcinoma gallbladder 13%, Ca Lung 10.65% and Haematolymphoid 10.65%. In our study commonest cancer were Carcinoma gallbladder (13%), Head and Neck 10.50% Carcinoma breast (10.58%), Carcinoma Lung 6.45%, Carcinoma Liver 4.8%, Carcinoma stomach 3.48%, Haematolymphoid Malignancies 6.0%, Carcinoma Cervix 6.36%, Carcinoma ovary 3.44%, Carcinoma Prostate 1.4%, 1.69% Brain, Kidney function 1.9%, Bone Marrow 3.1%, Carcinoma Pancreas 1.39% and Carcinoma colorectal 3.2%.

According to GLOBOCAN 2020 data most common cancer reported was Carcinoma Breast 11.1% in females followed by lung carcinoma 11.4%, Carcinoma cervix 3.1%. In males most common cancer was Carcinoma lung 14.3%, Carcinoma Prostate 14.01% and Gastrointestinal Tumor 10.6% oesophagus 4.2%. Study done by Sandhya [22] and Bal., *et al.* [19] shown commonest cancer in females was Carcinoma Breast (30.3%, 26.8%) followed by Carci-

noma cervix 13% [19,22]. Study done by Quereshi., *et al.* shown incidence of Carcinoma Breast was 16% of all cancers in their study. According to GLOBOCAN 2020 there is extra ordinary increase reported in Head and Neck carcinoma in Indian Population study done by Rana., *et al.* also shown commonest pathology in males was head and neck cancers. Commonest pathology shown in our study with head and neck cancer was squamous cell carcinoma. Some findings are reported by some other studies (Rana., *et al.* [18] Jamal [23]. Recent Population Based Cancer Registry from India shown commonest cancer was carcinoma breast in urban registries (Indian Council of Medical Research Report 2010) [24] All urban registries shown increasing trend of cancer registries in India (National Cancer Registry Programme 2009) [25]. Some of the epidemiological studies shown some of the identified factors like early menarche, late menopausal, high calorie intake, high intake of saturated fats and less vegetables and fruits are shown association with breast cancer (Stewart., *et al.* 2003 [26], Jayalakshmi., *et al.* 2006 [27], Yeole 2008 [28] Genetic evaluation and follow ups are registered for better understanding of nature and prognosis of disease [27,31]. Carcinoma gallbladder was commonest cancer in our study about 13.1% of all cancer patients. Study done by Chatterjee., *et al.* [30] shown Carcinoma gallbladder in 6.3% of cases. Relevance of carcinoma gall bladder shown association of gall stone with long standing gall stones [31]. Some epidemiological studies shown significant association of Carcinoma gallbladder with aflatoxins exposures [32,33] by International Agency for Research on Cancer (IARC). It has been classified as a class 1 carcinogens [34] environmental pollutants, level of heavy metals like nickel, chromium, cadmium in water have shown associations [35,36]. 3rd commonest malignancies reported in our study was Carcinoma lung 6.45% of all cancers. In 36 countries lung cancer in most commonly diagnosed cancer among males and it is leading cause of cancer related death in 93 countries. Khan., *et al.* shown commonest site in the study and habit of smoking association with lung cancer by various studies [37-41]. Lung cancer has been reported most common cancer in India from Population Based Cancer Registry [42]. 10% carcinoma levy cases reported in study done by Chatterjee., *et al.* [30]. Tobacco consumption diet and outdoor pollutants with well-established risk factors are responsible for lung cancer [43]. Carcinoma cervix reported in our study was 6.3% cases of all cancers registered most common age group was 40-45 years. According to GLOBOCAN 2020 It is the 4th commonly diagnosed cancer and 4th commonest cause of cancer death in females (GLOBOCAN

2020) [1] Study conducted by Khan., *et al.* [41] shown low incidence of carcinoma cervix (0.64%). Incidence are decreasing due to improved living standard of women in Kashmir (Khan., *et al.*) study conducted by Chatterjee., *et al.* [41] shown higher incidence of carcinoma cervix reason may be lack of screening and lack of prevention program in Odisha (Chatterjee). Incidence and mortality rates have been decreasing in most parts of world for past few decades may be due to increasing socio economic status, reducing poverty improvement of genital hygiene and decreasing prevalence of sexually transmitting disease [44].

In our study also showing decreasing trend of carcinoma for last five years which is quite like Population Based Cancer Registry across India 2009. Higher trend of carcinoma cervix also shown by Akhtar., *et al.* [45] with 3.1% increase which is contrary With National Cancer Registry Programme 2009 [26] reported increase in carcinoma cervix cases due to established risk factors like early marriage.

Study done by Chatterjee., *et al.* shown commonest cancer in males was oral cavity cancer (18.9%). Most prevalent sites in oral cancer were buccal mucosa and tongue. Oral cancers reported most common cancer all over India [30]. Etiological factors are tobacco smoking and chewing [46,47] in the form of betel grid quid, or pan, consisting with areca Nut processed and unprocessed form of tobacco slaked lime, khaini, Gutkha. In our study buccal mucosa and carcinoma tongue shown commonest site of involvement about 54%. The study done by Daftary DK shown decrease mortality by cancer screening by trained health worker [48].

A rising trend of oral cavity cancers reported in Mumbai and Delhi Population Based Cancer Registry. Among male and decreasing trend has been observed among females (National Cancer Registry Programme 2009). Murthy., *et al.* shown increase tobacco consumption shown association with oral cancers [49].

Prevalence of tobacco consumption shown in 56% in Odissa reported by Ministry of Health and Family Welfare (MoHFW) 2010 [50].

Early age of sexual activities and child birth. Low economic status, poor genital hygiene and infestation of human papilloma virus HPV (Hakama., *et al.*) [51].

Commonest histopathology in our study was squamous cell

carcinoma 43.9%, Adenocarcinoma 40%, Kumari A., *et al.* [52] observed squamous cell carcinoma was commonest histopathology. Study by and 11% adenocarcinoma Rana., *et al.* [19] shown 87.7% was squamous cell carcinoma (Rana) [21].

Haematological malignancies reported our study with 4.9% cases showing increasing trend. Commonest cancer was Non-Hodgkin Lymphoma (NHL) in our study report from national cancer registry in India showed significant increase in Non-Hodgkin Lymphoma (NHL) in all five urban Population Based Cancer Registry from 1.0%-7.9% (National Cancer Registry Programme 2009) [26].

Among gastrointestinal cancer total cases registered 7920 which were 24.7% of all cancer cases. Among Gastrointestinal Tumor cancer 51% cases of carcinoma gallbladder 19.8% cases of Carcinoma liver, 14% of Carcinoma stomach, 12.97% cases of Carcinoma colorectum. Study by Rana., *et al.* [21] shown 52% cases shown of rectal carcinoma with 64.6% cases of moderately differentiated adenocarcinoma. As per Rana, gastric cancer is more common in north eastern and southern India [53]. Study done by Quereshi., *et al.* shown gastric cancer is commonest cancer (18.8%), Role of diet, smoking, helicobacter pylori infection and genetic susceptibility has been studies worldwide [54]. Carcinoma stomach represented 4.46% in our study and 14% of all gastrointestinal cancer. Study done by Khan., *et al.* [21] shown increasing trend of carcinoma stomach. Some Indian studies have shown association of helicobacter pylori and some studies have failed to show association of helicobacter pylori [55,56]. Various etiological factor is responsible in relation to geographical variation including pickled food, spicy food, hat food, smoked dried fish, grilled fish, dried salted meat [57]. In Nallore district of Andhra Pradesh, higher consumption of spices. Leading to higher incidence of Carcinoma stomach (Sandhya *et al* [22]) commonest age group reported in carcinoma stomach in females 51-60 year and 60-70 years in males in our study [23].

Carcinoma stomach registered highest in Aizwal and Papumpore district in female Higher incidence of liver carcinoma registered for Papumpore district and colorectal carcinoma and Pancreatic carcinoma reported from Aizwal district. Male: female ratio shown in our study 2:1. Liver cancer is most diagnosed cancer and it is 3rd leading cause of cancer mortality in 2020. Rate of incidence and mortality reported higher in males than females in most part

of world major risk factor appears to be viral infections. Hepatitis C Hepatitis B Infections are responsible for 56% and 20% of liver cancer death worldwide. In our study 4.9% cases of liver carcinoma and 19% cases of gastrointestinal cancers. Male: female ration reported 2:1. 3.4% carcinoma ovary cases reported in our study commonest age group was 45-49 years. Most common histopathology was adenocarcinoma. 3.2% cases reported in colorectal carcinoma histopathologically. 98.4% cases shown adenocarcinoma study done by Quereshi., *et al.* [54] shown most common cancer among females (16.8%) and 2nd commonest among males (16.4%) with male: female ration of 1.3:1. Globally colorectal cancer reported is 3rd commonest in females and 2nd commonest in males [58]. Reason explained the change in type of food consumption. Reduction of physical activity and obesity can increase the incidence of colorectal cancer [59]. Quereshi multiple myeloma cases reported 3.1% of all cancer cases. Male: female ratio reported 2.2:1. [54].

Only 1.9% patient registered with carcinoma Prostrate with increasing trend every year which 3.4% of the total cases reported in study conducted by Khan., *et al.* [41] showed increasing trend of prostate cancer, Studies from western countries also shown increasing trend and in India [60]. In our study paediatric tumor shown about 4% while Khan., *et al.* shown about 1.79% of all the malignancies [41]. As per current trend in cancer there is 1% to 3% increase incidence of carcinoma breast in all Asian countries [61-63], incidence of colorectal cancers in both sexes are increasing in middle east, south east and east Asian countries but trends remain low in Indian sub continents [62-64]. Ca lung incidence more prevalent in population amongst smokers and rates are decreasing as stable due to tobacco control preventive measures [23]. Incidence of stomach cancers are declining in males and females but still it is second most common cancers in males [23,65] due to Hepatitis B vaccination incidence of liver cancer is decreasing in south east and east Asian Countries. Improving living countries and reduced exposure to aflatoxins also responsible for declining trend of liver cancer [66-71] Incidence of Head and Neck cancer are declining due to preventive measures and programme [23]. In Haematolymphoid malignancies increasing trend of non-Hodgkin Lymphoma shown [23]. Prostatic cancer incidence is increasing due to ageing and increase in life expectancy [23]. Oral pre cancers lesion and preclinical oral cancer can be detected only and cancer screening in high-risk patients and high incidence countries can reduce the mortality in tobacco and alcohol users [72-74]. Human Papilloma

users is responsible 70%-75% of carcinoma cervix [75]. Prophylactic human papillomaviruses (HPV) vaccines are highly effective to prevent use of persistent infections and precancerous lesion Caused by Human papilloma virus [76] Eradication of Helicobacter pylori infections has the potential to prevent stomach cancer and improve the healing of gastritis and mucosal damage [77] Mortality colorectal cancer has been decreasing due to improve early detection method by screening. About 26% cases were reported from Patna, Muzaffarpur, Vaishali, Nalanda, Saran. Literacy rate of all cancers ranges from 40%-60%.

Conclusion

- Carcinoma Gall Bladder is commonest cancer in our registry.
- Head and Neck cancer reported most common cancer amongst the Males, Reason may be personal habits like khaini, gutka and smoking habits.
- Carcinoma Breast is commonest cancer among the females, earlier carcinoma cervix was the commonest cancer in our registry.
- HIV vaccination and screening are methods to prevent carcinoma cervix.
- Gastrointestinal cancer can be prevented by Hepatitis vaccine, awareness programme to prevent exposure of aflatoxins, change in dietary habits.

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