Journal of Medical and Scientific Research

JMSR
www.jmsronline.com

David PL et al. J Med Sci Res. 2024; 12(2):158-163
http://dx.doi.org/10.17727/JMSR.2024/12-30

ORIGINAL RESEARCH OPEN ACCESS

A hospital based cancer registry in a tertiary care centre of South India

Leo David P[1] and Beyaril Chitra C[1,*]

[1]Department of Pathology, Kanyakumari Government Medical College, Asaripallam, Nagercoil-629201, Tamil Nadu, India

Abstract

Introduction: Hospital based cancer registry maintains data on all newly diagnosed and treated cancer patients in a particular hospital. This helps in the estimate of magnitude of cancer and the pattern of cancer. We did not have cancer registry from Kanyakumari Government Medical College. So, this study was aimed to assess the burden of cancer since the inception of Kanyakumari Government Medical College and to analyse the pattern of the reported malignant cases.

Methodology: This is a retrospective observational study. Institutional research and ethical clearance obtained. Records from the year 2006 to 2022 were retrieved from the pathology department of Kanyakumari Government Medical College. All the malignant cases were entered in access database according to ICD-10 classification and were further categorised based on the patient's age, sex and site of origin of the tumour. A quantitative analysis was made and exhibited in tables and graphs.

Results: Relative proportion of cancer is more among females (5%) than men (4.3%). The top five leading cancer sites in female in descending order of frequency are breast, female genital tract, stomach, skin, tongue and larynx.

Conclusion: This study shows that the magnitude of cancer cases reported at Kanyakumari Government Medical College over a period of 2006 to 2022 is less compared to the nearby districts. Female breast cancers are at increasing trend. In males it is oral cavity cancer. This data could help to document, analyse and set a base for population based cancer approach in and around Kanyakumari District.

Keywords: hospital based cancer registry; Kanyakumari; relative proportion male: female; breast cancer; oral cancer; ICD-10

Introduction

Hospital based cancer registry maintains data on all newly diagnosed and treated cancer patients in a particular hospital. This helps in the estimate of magnitude of cancer and the pattern of cancer. Cancer registry programs were started way back from 1980s in India by ICMR. Since then, cancer registry has been maintained all over India. Even though we get to see data from South Tamil Nadu, we did not have cancer registry from Kanyakumari Government Medical College. So, this study is aimed to assess the burden of cancer since the inception of Kanyakumari Government Medical College and to analyse the pattern of the reported malignant cases. Thereby we initiate and maintain a track of the reported cancer cases in our facility. This will contribute to active follow-up of cancer patients. Hospital based cancer registry can potentially help, support a better understanding of health care system, process of cancer care, the clinical endpoints and patient outcome of care [1].

India has one of the highest cancer incidence and mortality rates in the world. A good surveillance system in the form of cancer registries is important for planning and evaluating cancer-control activities [2]. Cancer

***Corresponding author:** Dr. Beyaril Chitra C, Department of Pathology, Kanyakumari Government Medical College, Nagercoil-629201, Tamil Nadu, Email: beyarilchitra@gmail.com

Received 28 December 2023; *Revised* 1 March 2024; *Accepted* 8 March 2024; *Published* 18 March 2024

Citation: David PL, Chitra CB. A hospital based cancer registry in a tertiary care centre of South India. J Med Sci Res. 2024; 12(2):158-163. DOI: http://dx.doi.org/10.17727/JMSR.2024/12-30

registration in India should be complemented with a nationwide effort to foster systematic investigations of cancer patterns and trends by states, regions and sub populations and allow a continuous cycle of measurement, communication and action [2].

This study was aimed to assess the burden of cancer from 2006 to 2022 in Kanyakumari Government Medical College and analysed the pattern of the reported malignant cases.

Materials and methods

This is a retrospective observational study. Institutional research and ethical clearance obtained. Records from the year 2006 to 2022 were retrieved from the pathology department of Kanyakumari Government Medical College. All the malignant cases reported were included except the blood malignancies. The collected data were entered in access database. The data were organised according to ICD-10 classification and are further categorised based on the gender and site of origin of the tumour.

The results were entered in cross tab and quantitative analysis was made to find out the percentage, the mean values and are exhibited in tables and graphs.

Results

35022 biopsy specimens were received in the Department of Pathology, Kanyakumari Government Medical College from 2006 to 2022. In this 3266 cases were diagnosed as cancer by light microscopic method, with male and female percentage of 4.3% and 5% respectively (Table 1).

Table 1: Number (n) and relative proportion (%) of cancer cases reported in the Department of Pathology, Kanyakumari Govt. Medical College from 2006 to 2022.

Period 2006 -2022		
Male		
	No. of cancer (n)	1515
	% of cancer among total biopsies	4.3
Female		
	No. of cancer (n)	1751
	% of cancer among total biopsies	5.0
Total		
	Total No. of cancer (n)	3266
	No. of all Biopsy specimens (n)	35022
	% of cancer among total biopsies	9.3

Table 2 shows that head and neck cancers are the frequently reported cancers and the least presented cancers are carcinoma of adrenal gland and carcinoma of eye. Breast cancers predominates to female patients.

Table 2: Number (n) and relative proportion (%) of cancers on various sites reported from 2006 to 2022.

Site	*ICD-10*	*Male*		*Female*		*Total*	
		n	*% (all sites)*	*n*	*% (all sites)*	*n*	*% (all sites)*
Head & neck	C00 – C06, C09 – C14, C32	688	45.4	239	13.7	927	28.4
Gastro intestinal tract	C15 – C25	361	23.8	165	9.4	526	16.1
Breast	C50	18	1.2	596	34	614	18.8
Gynaecological cancers	C51 – C58	0	0	429	24.5	429	13.1
Skin	C43 – C44	131	8.6	80	4.6	211	6.5
Thyroid	C73	21	1.4	104	5.9	125	3.8
Male genetal tract	C60 – C63	80	5.3	0	0	80	2.5
Kidney & urinary bladder	C64 – C67	38	2.5	23	1.3	61	1.9
Lungs	C33 – C34	29	1.9	8	0.5	37	1.1
Retroperitoneum & soft tissue	C48 – C49	23	1.5	16	0.9	39	1.2
Lymphoid tissue	C81 – C90	21	1.4	13	0.7	34	1
Secondary neoplasm of lymph node	C77	57	3.8	36	2.1	93	2.9
Brain, meninges & cranial nerves	C70 – C72	14	0.9	13	0.7	27	0.8

Table 3 is based on the ICD-10 classification, C02, C06 categories in oral cavity are the most common site for cancer. This area points to the gingival-buccal mucosa of the oral cavity. Breast and thyroid malignancies are female predominant whereas all other malignancies are more prevalent among the male population. Colorectal cancers and oral cavity malignancies are near equal in both sexes although it is little more among the men.

Table 3: Number (n) and relative proportion (%) of cancers on various sites based on ICD 10 classification, reported from 2006 to 2022.

ICD 10 Code	*ICD 10 Name*	*Number*			*%*		
		F	*M*	*Total*	*F*	*M*	*Total*
C00	Lip	24	40	64	1.37	2.64	1.96
C01	Base of Tongue	12	35	47	0.69	2.31	1.44
C02	Other areas Tongue	29	115	144	1.66	7.59	4.41
C03	Gum	19	44	63	1.09	2.9	1.93
C04	Floor of Mouth	16	42	58	0.91	2.77	1.78
C05	Palate	2	23	25	0.11	1.52	0.77
C06	Other & unspecified parts of mouth	118	227	345	6.74	14.98	10.56
C09	Tonsil	1	18	19	0.06	1.19	0.58
C10	Other Oropharynx	1	31	32	0.06	2.05	0.98
C11	Nasopharynx	4	8	12	0.23	0.53	0.37
C12	Pyriform sinus	2	12	14	0.11	0.79	0.43
C13	Hypopharynx	3	15	18	0.17	0.99	0.55
C14	Pharynx unspecified	2	15	17	0.11	0.99	0.52
C32	Larynx	6	63	69	0.34	4.16	2.11
C07	Parotid	2	9	11	0.11	0.59	0.34
C08	Other salivary glands	6	4	10	0.34	0.26	0.31
C15	Oesophagus	16	69	85	0.91	4.55	2.6
C16	Stomach	42	137	179	2.4	9.04	5.48
C17	Small Intestine	6	11	17	0.34	0.73	0.52
C18	Colon	35	42	77	2	2.77	2.36
C19	Recto sigmoid	1	2	3	0.06	0.13	0.09
C20	Rectum	40	45	85	2.28	2.97	2.6
C21	Anus & anal canal	7	14	21	0.4	0.92	0.64
C22	Liver	3	17	20	0.17	1.12	0.61
C23	Gallbladder	3	9	12	0.17	0.59	0.37
C24	Other biliarytract	0	0	0	0	0	0
C25	Pancreas	12	15	27	0.69	0.99	0.83
C30	Nasal cavity & middle ear	7	10	17	0.4	0.66	0.52
C31	Accessory sinuses	6	3	9	0.34	0.2	0.28
C33	Trachea	0	0	0	0	0	0
C34	Bronchus & lung	8	29	37	0.46	1.91	1.13
C40	Bone of limbs	2	3	5	0.11	0.2	0.15
C41	Bone of other areas	0	1	1	0	0.07	0.03
C43	Melanoma of skin	6	9	15	0.34	0.59	0.46

C44	Other skin	74	122	196	4.23	8.05	6
C45	Mesothelioma	0	0	0	0	0	0
C46	Kaposi Sarcoma	0	0	0	0	0	0
C47	Peripheral nerves	0	2	2	0	0.13	0.06
C48	Retroperitoneum	6	4	10	0.34	0.26	0.31
C49	Soft tissues	10	19	29	0.57	1.25	0.89
C50	Breast	596	18	614	34.04	1.19	18.8
C51	Vulva	5	0	5	0.29	0	0.15
C52	Vagina	4	0	4	0.23	0	0.12
C53	Cervix uteri	287	0	287	16.39	0	8.79
C54	Corpus uteri	51	0	51	2.91	0	1.56
C55	Uterus unspecified	0	0	0	0	0	0
C56	Ovary etc	82	0	82	4.68	0	2.51
C57	Other female genital	0	0	0	0	0	0
C58	Placenta	0	0	0	0	0	0
C60	Penis	0	64	64	0	4.22	1.96
C61	Prostate	0	14	14	0	0.92	0.43
C62	Testis	0	2	2	0	0.13	0.06
C63	Other male genital	0	0	0	0	0	0
C64	Kidney etc	6	12	18	0.34	0.79	0.55
C65	Renal pelvis	0	0	0	0	0	0
C66	Ureter	0	0	0	0	0	0
C67	Urinary bladder	17	26	43	0.97	1.72	1.32
C68	Unspecified urinary organs	0	0	0	0	0	0
C69	Eye	1	1	2	0.06	0.07	0.06
C70	Meninges	9	6	15	0.51	0.4	0.46
C71	Brain	4	8	12	0.23	0.53	0.37
C72	Spinal cord, cranial nerves	0	0	0	0	0	0
C73	Thyroid	104	21	125	5.94	1.39	3.83
C74	Adrenal gland	5	1	6	0.29	0.07	0.18
C75	Other endocrine glands	0	0	0	0	0	0
C77	Secondary neoplasm of lymphnode	36	57	93	2.06	3.76	2.85
C81	Hodgkins disease	2	2	4	0.11	0.13	0.12
C82	Follicular lymphoma	0	1	1	0	0.07	0.03
C83	Non-follicular lymphoma	11	18	29	0.63	1.19	0.89
C84	Mature T/NK – cell lymphoma	0	0	0	0	0	0
C85	Other lymphomas	0	0	0	0	0	0
C88	MaligImn. prol D	0	0	0	0	0	0
C90	Multiple myeloma	0	0	0	0	0	0
C91	Lymphoid leukemia	0	0	0	0	0	0
Total		1751	1515	3266	100	100	100

Table 4 shows that among the head and neck cancers, prevalence of carcinoma of mouth is more followed by tongue, oropharynx, larynx, lip, hypopharynx and nasopharynx. Figure 1 shows that all the head and neck cancers are male preponderant.

Table 4: Number (n) and relative proportion (%) of each site of cancers of head and neck relative to all sites of cancer reported at the Department of Pathology, Kanyakumari Govt. Medical College, from 2006 to 2022.

Sites of cancer (ICD – 10 code)	*Males*	*Females*	*Total*	
	n	*n*	*n*	*% (all sites)*
Lip (C00)	40	24	64	2
Tongue (CO2)	115	29	144	4.4
Mouth (CO3, CO4, CO6)	313	153	466	14.3
Gum (CO3)	44	19	63	1.9
Floor of mouth (CO4)	42	16	58	1.8
Other and unspecified par of mouth (CO6)	227	118	345	10.6
Oropharynx (C01, C05, C09, C10, C14)	122	18	140	4.3
Base of tongue (C01)	35	12	47	1.4
Palate (C05)	23	2	25	0.8
Tonsil (C09)	18	1	19	0.6
Oropharynx (C10)	31	1	32	1
pharynx (C14)	15	2	17	0.5
Nasopharynx (C11)	8	4	12	0.4
Hypopharynx (C12-C13)	27	5	32	1
Pyriform sinus (C12)	12	2	14	0.4
Hypopharynx (C13)	15	3	18	0.6
Larynx (C32)	63	6	69	2.1
Cancers of head and neck	688	239	927	28.4

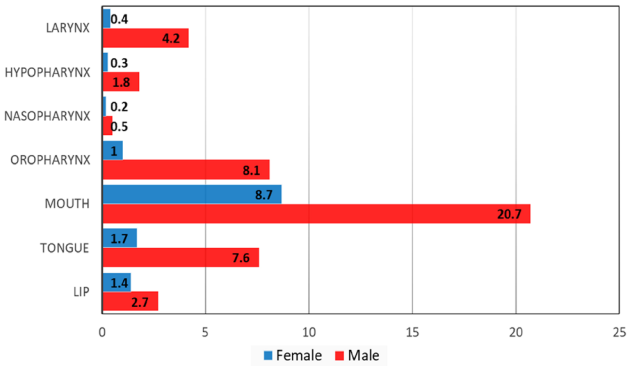

Figure 1: Relative proportion (%) of each site of cancers of head and neck relative to all sites of cancer reported at the Department of Pathology, Kanyakumari Govt. Medical College, from 2006 to 2022.

Discussion

The relative proportion of the reported cancer cases were 9.3%. This is slightly less compared to the prevalence in our neighbouring district Tirunelveli as stated in a study by Usha and Suresh Durai [3]. We found that the female cancers were more compared to the male cancers over the period of 2006 to 2022. In a research article by Hridhaya et al also shows more cancer prevalence among the female population [4]. This is owed to the major contribution from the breast cancer. Breast cancer represents 1 in 4 cancers diagnosed among women globally [5].

As compared to the GLOBOCON data, thyroid carcinomas were high among females. Colorectal carcinomas though little less compared to the male population, it is almost reaching to the sum which is also coinciding with the findings of GLOBOCON [6].

The top five leading cancers sites in female in descending order of frequency are Breast, uterine cervix, mouth, thyroid and ovary. Whilst in the surrounding districts are as follows: Tirunelveli: female breast followed by cervix, head and neck, GIT and thyroid in descending order. Thiruvanathapuram: Female cancers- breast >thyroid >ovary>uterine cervix>uterine corpus [7]. The

most important finding is that breast carcinoma is at its peak among the female population,

The top five leading cancer sites in male in descending order of frequency are mouth, stomach, skin, tongue and larynx. Tirunelveli: head and neck followed by GIT, male genital tract, lymph node and urinary tract malignancies in descending order of frequency. Thiruvanathapuram: Lung>prostate> mouth>tongue>liver [7]. The findings are almost comparable to Tirunelveli district [7].

According to other studies like Mallath et al [4] Colorectal, lung, cervical, and thyroid cancers are also common among women. Lung cancer and prostate cancer are more among the men. A study by Binu et al says among males, 33.1% of all cancers were in the respiratory system followed by digestive organ cancers (23.2%). Among females, 28.4% cancers were related to the reproductive system, 22.8% to the respiratory system and 14.1% to digestive organs [8].

While going through the head and neck cancers particularly oral cancers involving the unspecified parts of mouth, floor of mouth and gums were at its lead when categorised according to various site and is more among the males.

Mouth cancers are more among the male population which is attributed to practices like betel nut, tobacco chewing, cigarette smoking and poor oral hygiene. This statement is upheld in a study by Mallath et al and it is also reported in the small taluks of Kanyakumari district since early 20th century as documented by the medical missionaries of Neyyoor Cancer Hospital [9]. It is more commonly seen among the lower socioeconomic group who were less informed about healthy practices and are the group of people who have to toil from dawn to dusk as labourer. This statement is supported by Behera and Patro in their research article. It states that the people can die due to cancer without access to health care in rural parts of the country due to lack of awareness about the cancers remains the key. Distance from appropriate health services and lower socioeconomic classes add more to it [9, 10].

Few studies by Hussain et al and Qazil et al also points that, among men, hypopharyngeal cancer, esophageal cancer, lung cancer, stomach cancer, and oral cancer were the major cancer types prevalent and, among females, cervical cancer, mouth cancer, breast cancer, ovary cancer, and thyroid cancer were the common cancer types [11, 12]. Significant prevalence of pharyngeal and laryngeal carcinoma is also noticed, whereas all other cancers were more among the male population.

Limitations: The present study was based on a limited number of cases and provides only a single centre report. A multicentre approach will provide a conclusive data.

Conclusion

This study shows that the magnitude of cancer cases reported at Kanyakumari Government Medical College in the period between 2006 to 2022 is less compared to the nearby districts. Female breast cancers are at increasing trend. In male patients, oral cavity cancer predominates. This data could help to document, analyse and set a base for population-based cancer approach in and around Kanyakumari district.

Conflicts of interest

Authors declare no conflicts of interest.

References

[1] Rajan HM, Mageswari S, Gayathri K, Satish S, Baluswamy M, et al magnitude and pattern of various cancers from tertiary health care center registry: A study in three southern states of India. J Cancer Res Ther. 2021; 17:336–339.

[2] Chatterjee S, Chattopadhyay A, Senapati SN, Samanta DR, Elliott L, et al. Cancer registration in India - Current scenario and future perspectives. Asian Pac J Cancer Prev. 2016; 17:3687–3696.

[3] Usha, Durai S. Incidence of cancer in Tirunelveli Medical College and Hospital- A five-year cancer surveillance project. IOSR-JDMS. 2017; 16:35–45.

[4] Mallath MK, Taylor DG, Badwe RA, Rath GK, Shanta V, et al. The growing burden of cancer in India: Epidemiology and social context. The Lancet. 2014; 15:E202–E212.

[5] Fathima H, Durai S. Hospital cancer registry in a tertiary care hospital in South Tamil Nadu- A comparative analysis of 2016 annual data with a decade old data on cancer incidence. J Dent Med Sci. 2018; 17:28–33.

[6] Ferlay J, Isabellasoerjomataram, Dikshith R. Cancer incidence and mortality worldwide: sources, methods and majorpatterns in GLOBACON 2012.

[7] National cancer registry programme. Consolidated report of population-based cancer-based registries 2009-2016; 2020.

[8] Binu V, Chandrashekhar T, Subba S, Jacob S, Kakria A, et al. Cancer pattern in Western Nepal: a hospital based retrospective study. Asian Pac J Cancer Prev. 2007; 8:183–186.

[9] Somervell HT. After Everest. first printed 1936, Great Britain, London Hodder and Stoughton Ltd, Chapter XXI, A Day's work at Neyyoor, pp.177–178.

[10] Behera P, Patro BK. Population based cancer registry of India – the challenges and opportunities. Asian Pac J Cancer Prev. 2018; 19:2885–2889.

[11] Hussain MA, Pati S, Swail S. Pattern and trends of cancer in Odisha, India: a retrospective study. Asian Pac J Cancer Prev., 2012; 13:6333–6336.

[12] Qazi IM, Abdhul GM, Gul BM. Pattern and magnitude of various cancers registered at regional cancer of tertiary care institute in North India. Int J Comm Med Pub Hea. 2016; 3:1672–1680.