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A Statistical Analysis of Cancer Registered at the Regional Cancer Centre, Trivandrum.

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SUMMARY

The cases registered at the Regional Cancer Centre, Trivandrum, during a three-year period (1977-80) are analysed. The number of cancers registered showed an increase every year. The most commonly seen malignancies in this centre are Oral Cancers, the most common cancer in males, cancer cervix is the most common cancer in females, next being oral cancer. Cancer, cervix is the second commonest amongst all cancers seen at this centre. Cancer cervix shows a true reduction in its frequency in successive years.

A good radiotherapy department has been functioning in Medical College, Trivandrum for several years now; however a cancer registry could be set up only with the establishment of the Regional Cancer Centre in 1977. We have not yet been able to set up a Hospital Based Cancer Registry. The data presented here are only of the cases registered in the Regional Cancer Centre, where, at the moment, only radiotherapy and chemotherapy services are available. Hence there may be a bias towards the cases requiring radiotherapy, and a decreased registration of malignancies requiring only surgical management.

FIGURE - 1

SITE DISTRIBUTION OF CANCER IN - 1980

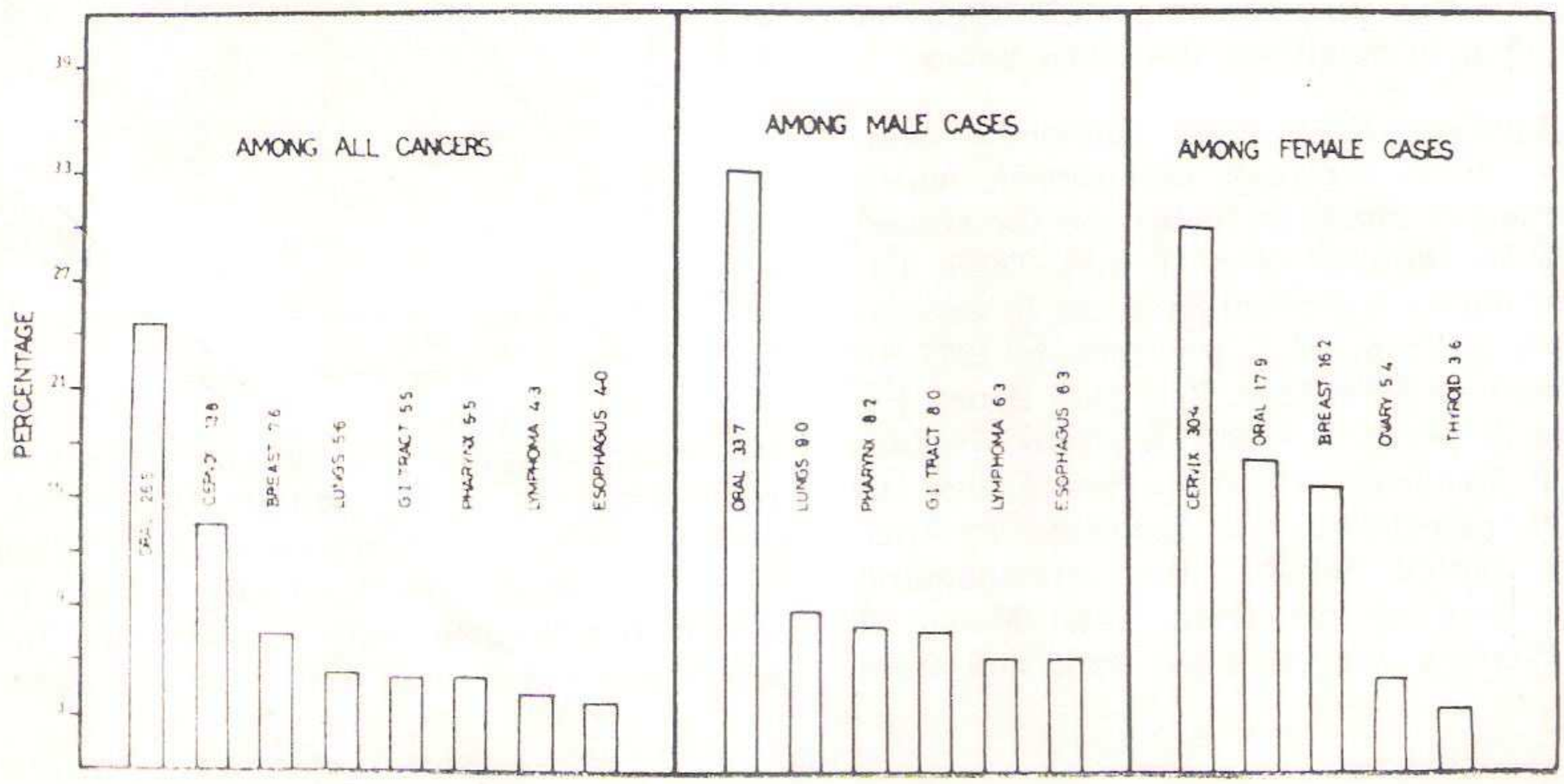
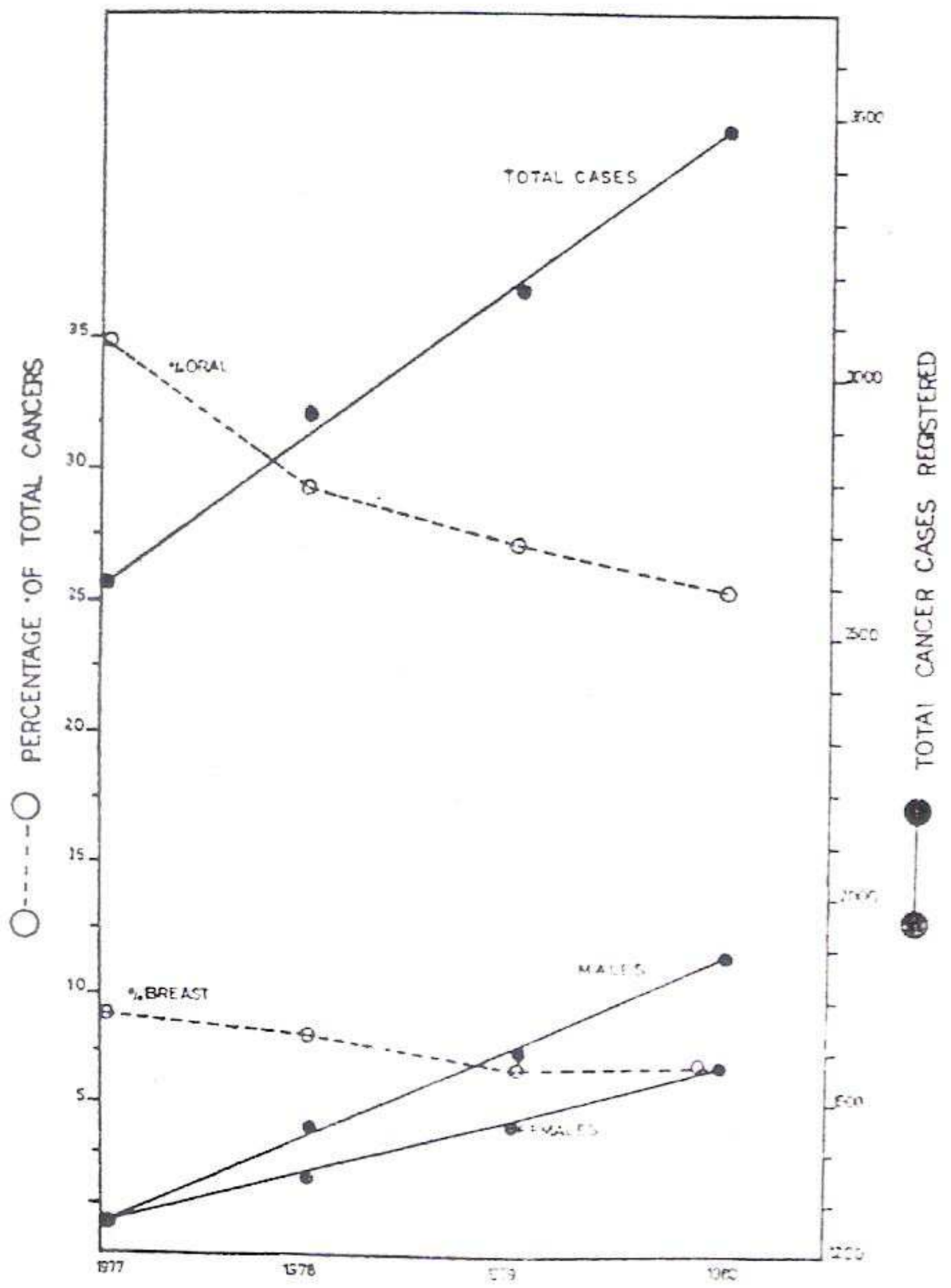


FIGURE - 2

ORAL AND BREAST CANCERS IN RELATION TO TOTAL CANCERS



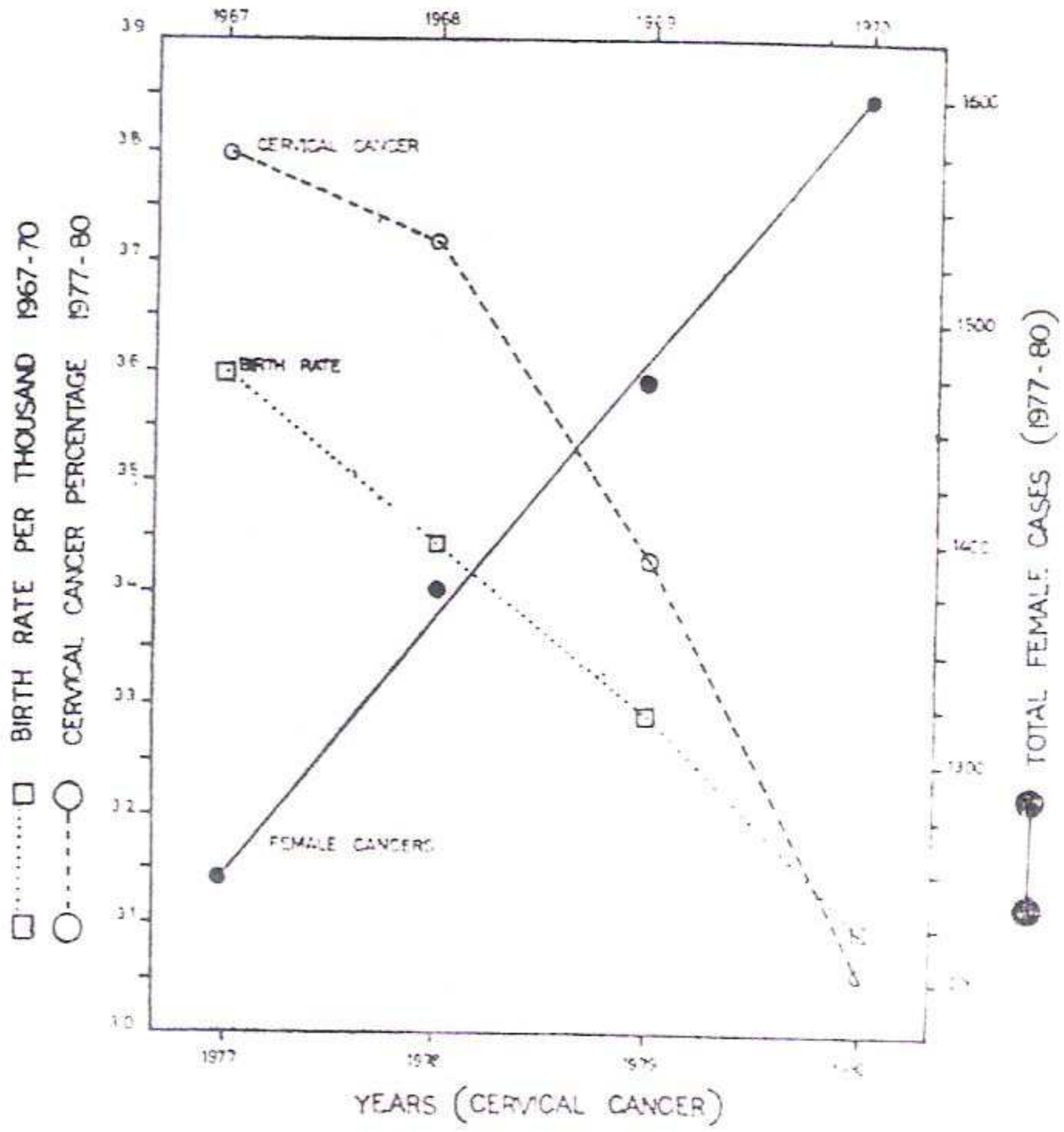
This paper presents data on the frequency of cancers at various sites as seen in our institution for the last four years from 1977 to 1980 (Table I). The registered cases are steadily increasing from a total of 2491 in 1977 to 3496 in 1980 (Table I and Fig. 2). Both male and female cases increased during this period, but a male preponderance in this increase is marked (Table II and Fig. 2). The important types of cancers studied in detail are described below.

Oral Cancer : The most commonly seen malignancy in our centre is oral cancer, which is the commonest cancer in males and the second commonest in females (Fig. 1 and Table II). Oral cancer shows a gradual decrease in percentage frequency from 34.7 per cent in 1977 to 26.5 per cent in 1980 (Fig. 2). Our figure for 1970-72 was 38 per cent (Ref. 1). A true reduction in the incidence of oral cancer due to decrease of pan-chewing is indicated by this. During the period 1970-72, the corresponding figures for oral cancer from Tata Memorial Hospital, Bombay, was 10.4 per cent and from Cancer Institute, Madras, was 20.4 per cent (Ref. 2). Note that the base of tongue (8%) is more frequently involved than buccal mucosa (4.6%) in Bombay (Ref. 2). In our centre however, the incidence of malignancy in oropharynx including base of tongue is only 1.5 per cent to two per cent, as against 14.9 per cent occurrence in buccal mucosa (Table I). The peak incidence of oral cancer was between the ages of 51-60 (Fig. 4). The religion-wise distribution of oral cancer almost correlates with the distribution of the various religions in the population (Table III).

Cancer of Uterine Cervix : Cancer cervix is the most common cancer occurring in females and the second commonest amongst the total cancers treated in this centre (Fig. 1 and Table II). This shows a true reduction in the frequency in successive years from 19 per cent in 1977 to 14 per cent in 1980 (Table I). If the occurrence of cervical cancer is expressed as

FIGURE - 3

CERVICAL CANCER IN RELATION TO FEMALE CANCERS (1977-80) AND BIRTH RATE (1967-70)



percentage of female cancers, then also a marked reduction from 38 per cent in 1977 to 30.4 per cent in 1980 could be seen (Fig. 3 and Table II). This may be due to the family planning drive which has become fully effective in the late 1960s, and consequent reduction in birth rates

TABLE 1 FREQUENCY DISTRIBUTION OR CANCERS AT VARIOUS SITES

I.C.D.O. No.		1977 Total	1977 %	1977 Sub group	1978 Total	1978 %	1978 Sub group	1979 Total	1979 %	1979 Sub group	1980 Total	1980 %	1980 Sub group	1977-80 Grand total Total	1977-80 Grand total %	1977-80 Grand total Sub group
	Total No. of cancers	2491	100.0		2869	100.0		3139	100.0		3496	100.0		11,995	100.0	
140-145	ORAL CAVITY	864	34.7		837	29.2		868	27.7		925	26.5		3,494	29.1	
140	Lip			45			52			30			45			172
141.4	Tongue, anterior 2/3			171			186			174			189			720
143	Gum			57			31			55			118			261
144	Floor of mouth			7			—			7			16			30
145.0/145.1	Cheek			554			544			544			465			2107
145.2	Hard palate			30			24			33			46			133
145.8	Multiple sites			—			—			25			46			71
142	SALIVARY GLANDS	13	0.5		15	0.5		15	0.5		28	0.8		71	0.6	
142.0	Parotid			11			12			11			21			55
142.9	Others			2			3			4			7			16
146-149	PHARYNX	71	2.8		93	3.2		135	4.3		177	5.1		476	4.0	
146	Oropharynx + Tonsil			39			43			74			76			232
147	Nasopharynx			11			21			20			30			82
148	Laryngopharynx			21			29			41			71			162
150	OESOPHAGUS	69	2.8		158	5.5		166	5.2		140	4.0		533	4.4	
151-159	GASTROINTESTINAL TRACT	107	4.3		115	4.0		159	5.1		191	5.5		572	4.8	
151	Stomach			41			50			55			62			208
153	Colon			16			9			15			17			57
154	Rectum & Anus			19			14			22			23			78
155	Liver (Prim + Sec)			25			30			37			51			143
157	Pancreas			2			10			10			16			38
158.9	Malignant ascites			4			2			20			22			48
160	PARANASAL SINUSES	26	1.0		37	1.3		37	1.2		33	0.9		133	1.1	
160.2	Maxilla			15			24			25			25			89
160.3	Ethmoid			1			3			5			—			9
160.4	Frontal			3			4			2			1			10
160.0	Nose			4			1			2			7			14
160.1	Mastoid & middle ear			3			5			3			—			11

TABLE 1 (Continued)

I.C.D.O. No.		1977 Total	1977 %	1977 Sub group	1978 Total	1978 %	1978 Sub group	1979 Total	1979 %	1979 Sub group	1980 Total	1980 %	1980 Sub group	1977-80 Grand total Total	1977-80 Grand total %	1977-80 Grand total Sub group
161	LARYNX	91	3.7		102	3.6		82	2.6		87	2.5		362	3.0	
162	TRACHEA, BRONCHUS, LUNG AND PLEURA	76	3.0		144	5.0		186	5.9		197	5.6		603	5.0	
164.9	MEDIASTINUM	3	0.1		6	0.2		10	0.3		15	0.4		34	0.3	
169.0	LEUKAEMIAS	29	1.2		30	1.1		46	1.5		59	1.7		164	1.4	
	ALL			19			21			40			38			118
	AML			5			3			4			7			19
	CLL			—			—			—			1			1
	CML			—						2			9			12
	Unclassified			5						—			4			14
169.1	MYELOMA	9	0.4		21	0.7	1	19	0.6		31	0.9		80	0.7	
170	BONE TUMOURS	28	1.1		60	2.1	5	61	1.9		84	2.4		233	1.9	
	Osteosarcoma			12			18			8			19			57
	Osteolastoma			3			3			8			5			19
	Ewing's tumour			5			7			6			10			28
	Chondrosarcoma			3			6			6			8			23
	Histiocytosis						2			4			6			12
	Secondaries			5			16			17			33			71
	Others						8			12			3			23
171	SOFT TISSUE TUMOURS	30	1.2		39	1.4		47	1.5		77	2.2		193	1.6	
	Fibrosarcoma			10			12			10			21			53
	Neurofibrosarcoma			7			8			5			12			32
	Hemangiosarcoma			1			3			—			7			11
	Rhabdomyosarcoma			1			2			7			7			17
	Liposarcoma			1			3			3			2			9
	Synoviosarcoma			—			2			—			7			9
	Others			10			9			22			21			62
173	SKIN TUMOURS	15	0.6		52	1.8		46	1.5		64	1.8		177	1.5	
	Squamous cell Ca.			11			24			19			38			92
	Basal cell Ca.			1			7			5			6			19
	Malignant melanoma			3			14			15			16			48
	Others			—			7			7			4			18
174	BREAST	211	8.5		220	7.7		216	6.9		265	7.6		912	7.6	
180	UTERUS CERVIX	472	19.0		522	18.2		503	16.2		485	13.9		1987	16.6	

TABLE 1 (Continued)

I.C.D.O. No.		1977 Total	1977 %	1977 Sub group	1978 Total	1978 %	1978 Sub group	1979 Total	1979 %	1979 Sub group	1980 Total	1980 %	1980 Sub group	1977-1980 Grand Total	1977-1980 Grand Total %	1977-1980 Grand Total Sub group
181-182	UTERUS	11	0.4		9	0.3		25	0.8		43	1.2		88	0.7	
182	Corpus uteri			9			8			16			32			65
181	Choriocarcinoma			2			1			9			11			23
183	OVARY	49	2.0		45	1.6		75	2.4		86	2.5		255	2.1	
184	VAGINA & VULVA	3	0.1		6	0.2		15	0.5		17	0.5		41	0.3	
185-187	MALE GENITAL TRACT	43	1.7		42	1.5		33	1.1		61	1.7		181	1.5	
185	Prostate			10			13			5			14			42
186	Testis			10			9			10			14			43
187	Penis			23			20			20			33			96
188	URINARY BLADDER	33	1.3		49	1.7		37	1.2		25	0.7		144	1.2	
189	KINDNEY TUMOURS	22	0.9		21	0.8		21	0.7		15	0.4		79	0.7	
	Wilms'			7			8			9			4			28
	Hypernephroma			15			13			12			11			51
190	ORBIT	9	0.4		5	0.2		16	0.5		3	0.1		33	0.3	
191	BRAIN & SPINAL CORD	30	1.2		65	2.3		96	3.1		87	2.5		278	2.3	
193	THYROID	36	1.4		38	1.3		52	1.7		73	2.2		204	1.7	
194	ADRENAL	—	—		1	—		—	—		—	—		1	—	
196	LYMPHOMAS	119	4.8		103	3.6		128	4.1		150	4.3		500	4.2	
199	SECONDARY NODES FROM UNKNOWN PRIMARY	22	0.9		34	1.2		38	1.2		73	2.1		167	1.4	

TABLE 2 FREQUENCY DSTRIBUTION OF CANCERS IN MALES AND FEMALES

	1977					1978					1979					1980				
	Total	M	%	F	%	Total	M	%	F	%	Total	M	%	F	%	Total	M	%	F	%
Total No. of Cancers	2491	1249	—	1242	—	2369	1485	—	1384	—	3139	1664	—	1475	—	3496	1900	—	1596	—
Oral cavity	864	583	46.7	281	22.6	837	565	38.0	272	19.7	868	570	34.3	298	20.2	925	640	33.7	285	17.9
Salivary glands	13	12	0.9	1	—	15	8	0.5	7	0.5	15	9	0.5	6	0.4	28	15	0.8	13	0.8
Pharynx	71	59	4.7	12	0.4	95	74	4.9	19	1.4	135	107	6.4	28	1.9	177	155	8.2	22	1.4
Oesophagus	69	53	4.2	16	1.3	158	127	8.6	31	2.2	166	146	8.8	20	1.4	140	120	6.3	20	1.3
Gastro-intestinal tract	107	75	6.0	32	2.6	115	81	5.5	34	2.5	159	119	7.2	40	2.7	191	151	7.8	40	2.5
Paranasal sinuses	26	12	0.9	14	1.1	37	24	1.6	13	0.9	37	19	1.1	18	1.2	33	21	1.1	12	0.8
Larynx	91	79	6.3	12	1.0	102	93	6.3	9	0.7	82	74	4.4	8	0.5	87	80	4.2	7	0.4
Traches & lungs	76	68	5.4	8	0.6	144	128	8.6	16	1.2	183	170	10.2	16	1.1	197	170	8.9	27	1.7
Mediastinum	3	3	0.2	0	—	6	4	0.3	2	0.1	10	6	0.4	4	0.3	15	11	0.6	4	0.3
Lymphomas	119	96	7.7	23	1.9	103	80	5.4	23	1.7	128	96	5.8	32	2.2	150	119	6.3	31	1.9
Leukaemias	29	19	1.5	10	0.8	30	20	1.3	10	0.7	46	39	2.3	7	0.5	59	32	1.7	27	1.7
Myeloma	9	8	0.6	1	—	21	18	1.2	3	0.2	19	13	0.8	6	0.4	31	23	1.2	8	0.5
Bonetumours	28	19	1.5	9	0.7	60	33	2.2	27	2.0	61	37	2.2	24	1.6	84	46	2.4	38	2.4
Soft tissue tumours	30	12	0.9	18	1.4	39	21	1.4	18	1.3	47	26	1.6	21	1.4	77	45	2.4	32	2.0
Skin tumours	15	11	0.9	4	0.3	52	36	2.4	16	1.2	46	35	2.1	11	0.7	64	49	2.6	15	0.9
Breast	211	4	0.3	207	16.7	220	2	0.1	218	15.8	216	2	0.1	214	14.5	265	6	0.3	259	16.2
Uterus	11	0	—	11	0.9	9	0	—	9	0.7	25	0	—	25	1.7	43	0	—	43	2.7
Uterus cervix	472	0	—	472	38.0	522	0	—	522	37.7	508	0	—	508	34.4	485	0	—	485	30.3
Ovary	49	0	—	49	3.9	45	0	—	45	3.3	75	0	—	75	5.1	86	0	—	86	5.4
Vagina & vulva	3	0	—	3	0.2	6	0	—	6	0.4	15	0	—	15	1.0	17	0	—	17	1.1
Male genital tract	43	43	3.4	0	—	42	42	2.8	0	—	35	35	2.1	0	—	61	61	3.2	0	—
Urinary bladder	33	26	2.1	7	0.6	49	41	2.7	8	0.6	37	32	1.9	5	0.3	25	19	1.0	6	0.4
Kidney	22	14	1.1	8	0.6	21	10	0.7	11	0.8	21	16	0.9	5	0.3	15	11	0.6	4	0.2
Orbit	9	4	0.3	5	0.4	5	2	0.1	3	0.2	16	6	0.4	10	0.6	3	1	0.1	2	0.1
Brain and spinal cord	30	23	1.8	7	0.6	65	34	2.3	31	2.2	96	68	4.1	28	1.9	87	51	2.6	36	2.2
Adrenal	—	—	—	—	—	1	1	0.1	—	—	—	—	—	—	—	—	—	—	—	—
Thyroid	36	11	0.9	25	2.0	38	12	0.8	26	1.9	52	16	0.9	36	2.4	78	21	1.1	57	3.6
Secondary nodes	22	15	1.2	7	0.6	34	29	2.0	5	0.4	38	23	1.4	15	1.0	73	53	2.8	20	1.3

TABLE 3

CANCERS SEEN IN VARIOUS COMMUNITIES IN 1980

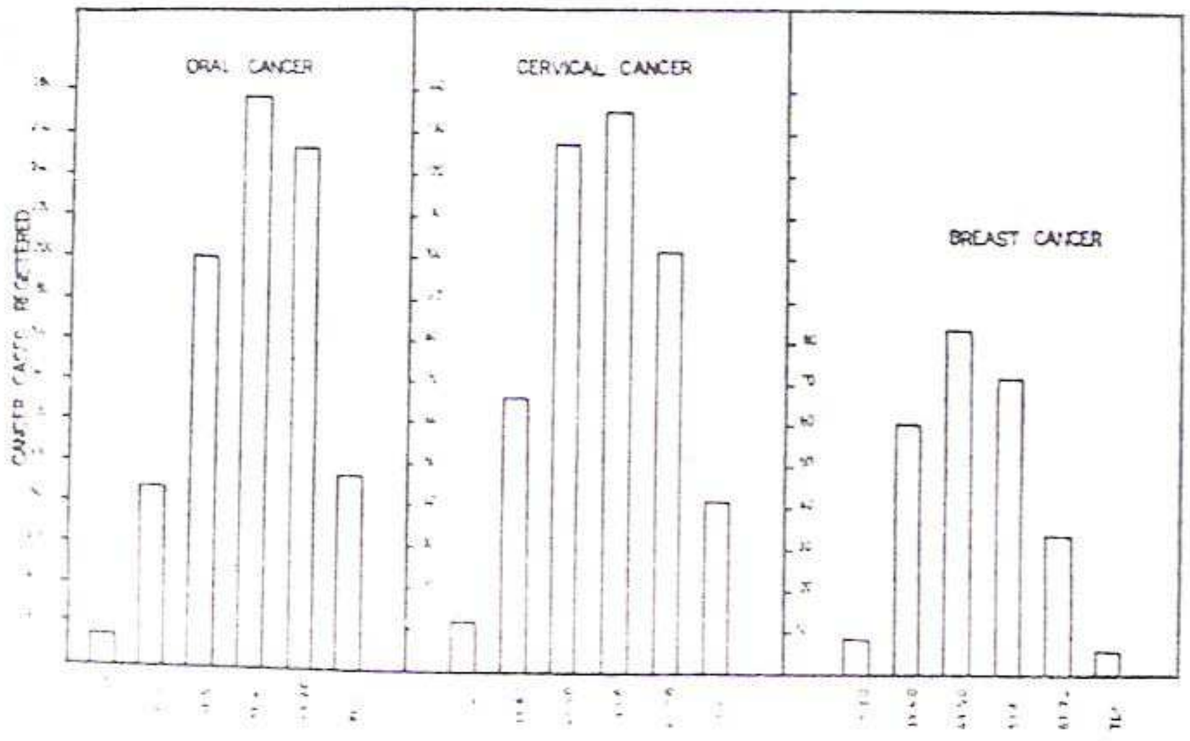
Community	Percentage of community in Trivandrum District as per 1971 census	Oral Cancer		Cervical Cancer		Breast Cancer	
		No. of cases	%	No. of cases	%	No. of cases	%
Hindu	71	605	65.4	342	70.5	170	64.5
Muslim	12	102	11.0	27	5.6	18	6.8
Christian	17	218	23.6	116	23.9	77	29.1
Total	100	925	100.0	485	100.0	265	100.0

(Percentage values for 1977, 1978 and 1979 are almost of the same order).

(Fig III). (Ref. 3). Since the biological latent period for malignancy is about 10 years, the curve of the birth rate in the late 1960's may reflect the cervical cancer incidence in the late 1970s. During the period 1970-72, the reported percentage frequency of cancer cervix from Tata Memorial Hospital, Bombay, was 13.9 per cent and from Cancer Institute, Madras was 28.7 per cent (Ref. 2). The peak incidence of cervical

FIGURE - 4

AGEWISE DISTRIBUTION OF CANCERS SEEN IN 1980



cancer in our centre is between 41-60 years (Fig. 4). The religion-wise distribution of cervical cancer shows a decreased incidence in Muslims (Table 3).

Breast Cancer : Breast cancer is the second commonest cancer in the female population and the third commonest in the total cancers registrend in our centre (Fig. 1). The frequency remains almost the same (8.5% to 6.9%) throughout the years 1977-80 (Fig. 2). During the period 1970-72, the figures reported from Tata Memorial Hospital, Bombay, was seven per cent and from the Cancer Institute, Madras was 6.9 per cent (Ref. 2). The peak incidence of breast cancer was seen to be between the ages of 51-60 (Fig. 4). The religion-wise distribution shows an increased incidence in the christian population (Table III) which may be explained by the better socio-economic status and the higher percentage of spinsters.

This report is the first one of its kind from the Regional Cancer Centre, Trivandrum. We are trying to develop a hospital-based tumour registry which is hoped to be upgraded into a population-based tumour registry at a later stage. Detailed epidemiological studies are in progress at our centre.

ACKNOWLEDGEMENTS

We are thankful to Dr. M. Krishnan Nair, the Director of our centre for the encouragement given for developing this Registry. The patience and team spirit of all the doctors who maintain and update the entries in the master-cards of this Registry and the Secretarial work of Miss Ponnammal in keeping the Registry are gratefully acknowledged.

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