Frequency of Gastrointestinal Tumours at A Teaching Hospital in Karachi

Pages with reference to book, From 14 To 17

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Abstract

Malignant gastrointestinal tumours are amongst the commonest tumours exhibiting an annual increase globally. There is a change in the morphological site of involvement observed over the years. In this study biopsy proven malignant gastrointestinal tumours seen at Jinnah Postgraduate Medical Centre, Karachi from 1961 - 1992 were analyzed with reference to age, sex, topography and histology. The study showed an increase in malignant gastrointestinal tumours over the years, from 9% in 1961 to 17% in 1992 with respect to all malignant tumours reported. The tumours affected a much younger age in our population, 74% occurring between 35-64 years of age. Carcinoma oesophagus accounted for 10% of all malignancies (48.7% male and 62.4% female gastrointestinal tumours), while gastnc carcinoma remained unchanged (14% male and 9% female GI tuniours). The colorectal carcinoma (25.4% of male and 20.1% of female CI tumours) and carcinoma pancreas (1.2% male and 1.5% female CI tumours) were less frequently seen. It was observed that malignant gastrointestinal tumours have increased significantly over the years in our local population as part of international trend and are occurring at a much younger age as compared to western population. Carcinoma oesophagus was seen more frequently than gastric carcinoma and colorectal carcinoma. A substantially higher number tend to be more anaplastic being seen at an advanced stage of disease at the time of diagnosis (JPMA 48: 14,1998).

Introduction

Gastrointestinal tumours are one of the commonest malipant neoplasms, that are increasing annually world over[1-4]. There appears tobe analteration in the trend regarding sites of predilection, involvement and histological variants, with a substantial mortality associated with them[5]. There is a great difference in incidence, behaviour, treatment options, and prognosis of malignant neoplasms within the component sites of gastrointestinal tract, as well as between various histologic variants within the same morphological sites[1]. The microscopic analysis of these tumours and determination of histologic types is thus helpful in predicting prognosis, deciding treatment options, conducting epidemiological studies and research[6]. Different histologic variants at the same anatomical site may have varied etiology, biological behaviour, incidence, clinical features or presentation, prognosis and treatment planning and its success. In addition, similar tumours may have different biological behaviour thus influencing clinical presentation, prognosis and treatment decisions[1].

Materials and Methods

The study included all biopsy proven malignant gastrointestinal turnouts seen from 1961 to 1992 at Jinnah PostgraduateMedical Centre, Karachi. The medical records of hospital based cancer registry comprising of Department of Pathology, Basic Medical Sciences Institute, Department of Surgery, Gastroenterology Unit of PMIRC and Department of Radiotherapy - Jinnah Postgraduate Medical Centre, Karachi were used as the data source. These cases were coded using ICD-O7 with reference to

topography (site) and morphology (histology) and were studied in terms of age, sex and histology. The clinical data, wherever avallable, was also analysed for
topography and stage of disease (extent or metastasis). The tumours which had metastasized to gastrointestinal tract from some other primary site were excluded and similarly those cases which had incomplete clinical or histological data were also excluded. The results were tabulated and analysed on computer using the software programme CANREG from IARC WHO (International Agency for Research on Cancer World Health Organization) Lyon.

Results

There were a total of 2969 malignant gastrointestinal tumours from 1961 to 1992, including 1771 male and 1198 female cases giving a M:F ratio of 1.5:1.

Table I. Age distribution of gastrointestinal tumours.

Age in years	Number of cases	Percentage
15-24	82	2.8%
25-34	248	8.4%
35-44	634	21.4%
45-54	834	28.1%
55-64	713	24.0%
>65	433	14.6%

Table I shows the age distribution of tumours indifferent age groups.

Table II. Five yearly ratio (%) of gastrointestinal tumours.

Year	Number of malignant GI tumours/total malignant tumours reported.	Percentage of malignant GI tumours
1961-1964	24/262	9.1%
1965-1969	76/617	12.3%
1970-1974	77/579	13.3%
1975-1979	80/540	14.8%
1980-1984	67/591	11.3%
1985-1989	100/722	13.9%
1990-1992	145/850	17.1%

Table II shows a five yearly distribution of these tumours. Gastrointestinal neoplasms increased proportionately every year, from 09% in 1961 to 17% in 1992, of all malignant tumours reported. Majority (28%) had malignancy in the 4th decade of life and over all 74% cases were between 35-64 years of age. Twenty-five cases which were less than 15 years of age were excluded, as paediatric tumours are different inhistology from adult population in many significant ways, GI tumours were the second commonest male tumours (17.2%) during 1961-1971,fiflh commonest (08.9%) during 1971-1981 and the most frequent (19.9%) during 1982-1992. Amongst females these were fourth commonest (11.5% and 12.5%) during 1961 - 1971 and 1971 - 1982 and second commonest (16.5%) during 1982 - 1992.

Table III. Gastroinetstinal tumours (male) JPMC, Karachi, (1961- 1992).

Tumour type	Age in years							Total	
	00-14	15-24	25-34	35-44	45-54	55-64	>65		
Squamous cell Ca esophagus	00	11	60	170	251	195	115	802	(45.3%)
Adenocarcinoma esophagus	00	00	05	02	11	23	19	60	(3.4%)
Adenocarcinoma stomach	00	04	12	58	67	52	39	232	(13.1%)
Malignant lymphoma, NHL stomach	05	01	03	04	01	00	00	14	(0.8%)
Adenocarcinoma colon and rectum	04	23	54	87	103	115	63	449	(25.4%)
Squamous cell Ca anal canal	00	00	08	15	12	21	12	68	(3.7%)
Undifferentiated sarcoma unspecified	01	00	03	04	01	01	02	12	(0.7%)
Undifferentiated carcinoma unspecified	01	03	01	05	06	12	03	31	(1.8%)
Adenocarcinoma small intestine and ampulla	00	01	02	02	08	04	02	19	(1.1%)
Basal cell carcinoma/ malignant melanoma anal canal	00	00	00	02	03	05	00	10	(0.6%)
Adenocarcinoma pancreas	00	00	00	06	07	07	01	21	(1.2%)
Undifferentiated carcinoma colon/rectum	01	00	01	03	03	01	02	11	(0.6%)
Lymphosarcoma, reticulum cell sarcoma unspecified	02	01	00	03	03	01	03	13	(0.7%)
Miscellaneous	02	01	05	02	11	03	05	29	(1.6%)
Total	16 (0.9%)	45 (2.5%)	154 (8.7%)	363 (20.5%)	487 (27.5%)	440 (24.8%)	266 (15.1%)	1771	

Table IV. Gastrointestinal tumours (Female) JPMC, Karachi (1961- 1992).

Tumour type	Age in years							Total	
	00-14	15-24	25-34	35-44	45-54	55-64	>65		
Squamous cell Ca esophagus	00	10	45	178	229	177	98	737	(61.5%)
Adenocarcinoma esophagus	00	00	02	02	02	01	04	11	(0.95%)
Adenocarcinoma stomach	00	03	08	16	24	31	17	99	(8.3%)
Malignant lymphoma, NHL stomach	01	00	02	01	01	00	02	07	(0.6%)
Adenocarcinoma colon and rectum	02	16	32	52	63	45	31	241	(20.1%)
Carcinoid tumour appendix/large intestine	00	00	01	01	02	02	01	07	(0.6%)
Squamous cell carcinoma anal canal	00	02	00	03	07	03	05	20	(1.7%)
Undifferentiated carcinoma unspecified	00	02	01	01	04	03	01	12	(1.0%)
Adenocarcinoma small intestine and ampulla	00	00	02	06	04	04	01	17	(1.4%)
Adenocarcinoma pancreas	00	00	00	03	05	05	05	18	(1.5%)
Lymphosarcoma, reticulum cell sarcoma unspecified	01	02	06	02	01	00	00	12	(1.0%)
Miscellaneous	00	02	01	06	04	02	02	17	(1.4%)
Total	04 (0.3%)	37 (3.1%)	100 (8.4%)	271 (22.6%)	346 (28.9%)	273 (22.8%)	167 (13.9%)	1198	

Table III and IV shows the distribution of tumours according to age, major histological types (morphology) and site of involvement (topography) in males and females.
Ocsophageal carcinoma comprised 10% of all malignant tumours, it was seen in 48.8% males and 62.6% females. Amongst the oesophageal carcinomas more than 92% and 98% were squamous cell in males and females respectively. The ratio of oesophageal carcinoma in general (62.6% in females and 48.8% in males) and squamous cell carcinoma in particular (61.5% in females and 45.3% in males) was higher in females. Carcinoma of distal/lower oesophagus (of cardioesophageal junction) was found to be increasing over the time, from 29.7% to 38.9%. Adenocarcinoma also increased from 1.6% to 2.4% in males over the years. The disease was localised in 25%, regionally spread in 55% and metastasised distantly in 20% cases at the time of initial diagnosis. Carcinoma stomach was found in 13% males and 8.3% females, with a male to female ratio of
1.5:1. Nearly all were adenocarcinomas and less than 1% were lymphomas. Twenty-eight percent had local, 33% regional and 39% metastatic disease at presentation. Proximal gastric involvement increased, from 2.3% to 6.1%. The reporting of lymphoma (from 0.3% to 1%) and leiomyosarcoma (from 0.1% to 0.4%) also increased over the years. Colorectal carcinoma was 26.4% in males and 20.5% in females. This was adenocarcinoma in over 97% cases. The male to female ratio was 1:0.5. Rectal tumour was more common (68.9%) amongst males and colonic (57.8%) in females. The tumours were local in 19%, locoregional in 41%and metastatic in4O%. Anal canal was the fourth frequent site of malignant involvement, involving 4.4% males and 1.8% females. Tumour was mostly squamous cell carcinoma and basal cell carcinoma/malignant melanoma. Adenocarcinoma was less frequent (0.2%). Lymphomas (Hodgkin's, Non-Hodgkin's and malignant unclassified), originating from GALT (gut associated lymphoid tissue). were 1.7% amongst males and 1.6% amongst females usually involving the stomach. Carcinoid tumour was 0.5% in males and 0.6% in females principally involving appendix and adjacent ileocecal region. Sarcomas were 0.9% in males and 0.4% in females, stomach being the most frequent site and affecting males more frequently.

Discussion

This data is fmm a hospital based registry, catering to about 10% of national population whtch represent almost all ethnic and cementic groups of the country. The data thus can be taken as a representative sample of country's population. This study has highlighted many aspects of gastrointestinal malignancies and has also shown certain inferences in line withpreviouslyreporteddata.Themalignantneoplasmsofthe gastrointestinal tract are occurring at a much younger age in our population as compared to the western opulation/white race as evidenced by age adjusted rates[1,8,9]. . Approximately 3/4 of the tumours occurred in the age group 35-64 years. The tumours occurring at a younger age tend to be more anaplastic1. This may be the reason for more undifferentiated and anaplastic tumours being reported locally. How occurrence of malignancy at a younger age influences the anaplastic grade, needs to be explored? In this study an increase in GI malignancies was observed, from 9% in 1961 to 17% in 1992. This phenomenon of an annual increase in malignant GI neoplasms is also reported from elsewhcreh[1-4]. This annual increment is more than expected with the advances in the diagnostic and screening pmgranimes. Gastrointestinal neoplasms now acquire the top position on frequency table of male malignancies and is the second frequent femaletumour in the period 1982-1992.
Carcinoma oesophagus accounted for 10% of all malignancies. This frequency is much higher than USA and Western countries where it is reported to be 1.5% of all malignancies and 7% of gastrointestinal malignancies[10]. Oesophageal carcinoma is showing high geographic variation in the world in terms of incidence, highest being in China and lowest being in Austria[10], Squamous cell carcinoma oesophagus especially and malignancy of oesophagus generally is reported to be higher

locally, being a little more frequent amongst females in contrast to American white population where it is predominantly a disease of males[8,10]. These incidence are close to those of black population in the world10. Carcinoma of lower oesophagus, especially. adenocarcinoma of cardioesophageal junction is increasing locally, like the trend observed worldover[11]. Carcinoma oesophagus, being asymptomatic is diagnosed late in our population. The disease is localised in 1/4 cases, regional in 1/2 and metastasised distantly in 1/5 of cases. Adenocarcinoma seems to be on the rise in recent years, especially amongst males, parallel to a trend found elsewhere in the world[8,11]. Gastric cancer has shown a remarkable decline over the years in USA[12,13] a trend not so evident locally. The dietary practices, dmg intake (acid suppressing agents), tobacco use, alcoholic beverages and chemical exposure are probably the reasons ma significant difference of incidence in the Western and local population[12]. In our study, carcinoma stomach appears to be more frequent in males, nearly all being adenocarcinomas and lymphomas account for only 1%. Somehow, the presentation of gastric malignancy is earlier in our population, 61%being locoregional. The ratio of locoregional disease is lower, usually less than 50% at presentation in the western population[1]. Gastric malignancies are detected earlier in our population because being symptomatic they cause outlet obstmction, or metastasise early and become evident. This phenomenon, is yet to be evaluated for its possible logical analysis and reasoning.
Colorectal carcinoma is infrequent (23%) locally in contrast to the West where it is 15% of all malignant tumours[2,9,14,16]. It is even lower than the black American population[1]. It is regarded as a highly curable disease in the west, due to early detection[16]. The peak age of involvement was lower in our study, which was similar to other malignancies[9]. The male to female ratio is found to be 1.9:1. Rectal involvement was higher in males and colonic in females. A change in relative frequency and pattern of involvement is reported[14,15], which is yet to be established in our local population. The overall survival rate have improved significantly overthe years16. The geographic trend difference is diminishing over the years in this particular cancer, a trend of progressively proximal colonic disease is becoming more evident[16]. The disease is found to be locoregional in 60% and metastatic in 40% cases at diagnosis. The mucinous carcinoma is metastatic mostly from the outset. The anal canal tumours are more than double in males. Carcinoma of anal canal is found to be more frequent amongst males and at a relatively younger age locally contrasting to the reports It is reported to be more common amongst blacks and homosexuals in the West[1,18]. Adenocarcinoma of pancreas was found to be 1-2% in our gastrointestinal series, while it is reported much higher (2.5% of all malignant neoplasms) from elsewhere in the World[17]. It is a disease of older age group and less than 74% is confirmed histologically[17]. A much laige scale international/regional studies are required setting up the guidelines and should target to uncoveryet unidentified etiologic factors by appreciating the peculiarities in different tumour distributions, to quantify the exposure and dose associated risks, to increase the present understanding of carcinogenesis, to suggest new prevention methods and to assess the efficacy of already practised preventive measuits[19]. The international variations between different tumour incidence are due to environmental factors, differences in diagnostic and reporting practices, genetic factors, migrating population, certain time trends of different malignancies, ethnic variations, socioeconomic patterns, survival trends and age patterns[19].

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