Original Article

GIT Tumer

Pattern of Gastrointestinal (GIT) Cancer in CENAR, Quetta Balochistan Pakistan: 10 Year Review (2001-2010)

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ABSTRACT

Objective: To assess the most common type of GIT tumor, most common site of this tumor, Sex and staging in people of Balochistan including patients from Afghanistan.

Study Design: Retrospective, Analytic study

Place and Duration of Study: This study was carried out at the was carried out at the Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta from January 2001 to December 2010

Materials and Methods: 8324 cases of different malignancies were seen over the 10 year period with an average of 833 cases /year, This 10 year review of patients with GIT cancers was carried out at the Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta. Information extracted from the case notes of patients in record i.e most common type of tumor, most common site of this tumor, sex and staging.

Results: The most common type was GIT tumors with a total of 2278 patients. GIT cancer occur among male most commonly, the esophagus being the most commonest site and mostly(more than half) presented cases are in Stage III and Stage IV

Conclusion: This result shows that in Balochistan including adjustant Afghanistan most common type of cancer/malignancy was GI among all malignancies. GI malignancy occurs among male most commonly, the esophagus being the most common site. Mostly (more than half) presented cases are in Stage III and Stage IV cases. Cancer management is a global health problem specially in this part of world due to lack of awareness, early diagnosis, better treatment system in multidisciplinary team as indicated in this article need of future research in G.I.T and other tumors.

Key Words: GIT Cancer, Cenar, Quetta, Baluchistan

INTRODUCTION

Primary GI (Gastrointestinal) malignancy is a global oncological problem. GI malignancies differ in different geographic areas. Carcinoma esophagus is more frequent in Iran, carcinoma stomach in Eastern Asian countries and colorectal carcinoma is more common in developed world. The geographic differences depend on food, environmental and genetic predisposition. Those having low fiber food have high incidence of colorectal carcinoma. People taking hot beverages have high incidence of esophagus carcinoma[1].

Esophagus cancer ranks as the 6th most frequent cancer world over with 412,000 new cases every year. Cancer of esophagus shows marked geographic variability with highest incidence measured in, Caspian littoral of and The esophageal "Asian cancer belt" stretches eastwards from Iran through Turkmenistan, Northern Afghanistan, Uzbekistan, Kazakistan into Northern China and Mongolia with annual age standardized incidence rate (ASIR) as high as 100 new cases per 100,000 population[2]. Western studies indicate the effect of cigarette smoking and alcohol consumption in the development of this disease; where as studies conducted in countries lying on this "Cancer belt" have failed to determine any specific etiological factor. Dietary factors including the consumption of hot tea, leftover food and lack of vegetable or diary product in the diet have been considered as etiological factors in esophageal cancer [3].

Colorectal cancer is a major cause of morbidity and mortality, being one of the most common malignant tumors in the world and third leading cause of cancer related deaths in United States. The incidence of colorectal cancer in Asian subcontinent, United Arab Emirates and Gulf countries is considered to be low due to their vegetarian life style [4].

Stomach cancer also called gastric cancer, is a malignant tumor arising from the lining of the stomach[5]. Stomach cancer causes about 800,000 deaths worldwide per year. Prognosis is poor (5year survival <5 to 15%) because most patients present with advance disease. It is disease with a high death rate (~800,000 per year) making it the second most common cause of cancer death worldwide after lung cancer. It is more common in men and in developing countries[6]. Smoking causes stomach cancer, and accounted for more than a fifth of stomach cancer in the UK in 2010, it has been estimated current smokers have a 57%

increased risk over all. Men have a higher smoking related risk than women, with a risk increases for current or ever smoking men of 62% and 59%, respectively, compared with 20% and 11% for women[7].

Liver cancer is one of the most common forms of cancer in the world, but liver cancer is uncommon in the United States [8]. Primary liver cancer account for less than 1% of all cancers in North America where as in Africa, Southeast Asia and China, they may account for up to 50% of cancers. The high prevalence of people carrying the hepatitis B virus and having liver cirrhosis may account for this geographic discrepancy[9]. In other parts of the world, liver cancer may also be connected to consuming nuts and grain contaminated by aflatoxin, a harmful substance made by mold [10]. Globally, as of 2008, liver cancer was the third leading cause of cancer death at 700,000 per year, after lung cancer (1.4 million deaths) and stomach cancer (740,000 deaths) [11].

Small intestine cancer is not as common as colorectal cancer (cancer of large intestine). It is quite uncommon and accounts for less than 2% of all gastrointestinal cancer. In 2007 there were 613 new cases of small intestine cancer in Canada [12].The incidence of small bowl cancer in the united states in 2007 was projected to be 5640 cases, of which 2940 cases were projected to be in males and 2700 were projected to be in females. An estimated 1090 persons (male 570; females520) were projected to die of the disease in 2007. In general, small bowl cancer prevalence is lower in Asia and in less industrialized countries than in Western countries[13].

Pancreatic cancer is the fourth most common cause of cancer related death in the United States and the eight worldwide. Pancreatic cancer has an extremely poor prognosis: for all stages combined, the 1-year survival rate is 25%, and the 5-year survival is estimated as less than 5% to 6%. In 2010, an estimated 43,000 people in the US were diagnosed with pancreas cancer and almost 37,000 died from the disease; Pancreatic cancer has one of the highest fatality rates of all cancers, and is the fourth highest cancer killer among both men and women worldwide[14]

Gall bladder cancer is a relatively uncommon cancer. It has peculiar geographical distribution being common in central and South America, central and Eastern Europe, Japan and northern India. The incidence of gall bladder cancer is increasing in China as well as north central India [15]. Gall bladder cancer is rare, with around 670 new cases in the UK each year [16].

Anal cancer is fairly uncommon, and accounts for about 1-2% of cancers affecting the intestinal tract. Approximately one in 600 men and women will get anal cancer in their lifetime (this can be compared to 1 in 20 men and women who will developed colon and rectal cancer in their lifetime). Almost 6,000 new cases of anal cancer are now diagnosed each year in the U.S; with about 2/3rds of the cases in women. Approximately 800 people will die of the disease each year [17]. The American cancer society estimated that in 2012 about 6,230 new cases of anal cancer would be diagnosed in the United States (3,980 in women and 2,250 in men). In the United States, an estimated 780 people died of anal cancer in 2012 [18]

MATERIALS AND METHODS

A ten year retrospective study of G.I.T tumor patients diagnosed and treated at our centre was conducted. 2278 patients pathologically proven G.I.T tumors were registered at CENAR, Quetta from 1st January 2001 to 31st December 2010 were analyzed. During this period, files of all registered patients were reviewed and data collected. Statistical percentage and graphs were used to evaluate the results. CENAR is one of the regional cancer management and research centre in Pakistan and provides treatment facilities to the entire Balochistan province along with adjoining territory of Afghanistan.

RESULTS

In the study of G.I.T tumors, 8324 patients were analyzed. Fig 1 provides an over view of highest percentage of G.I.T tumors which comprise more than 27% of the total cancer patients in the 10 year interval studied making G.I.T tumor number one in all malignancies.

Males outnumbered females in the ratio 1.3**:**1.0 in Balochistan including 1.5**:**1.0 from Afghanistan (Figure 2).

It was observed that Esophagus was the commonest site in both sexes with 1178(51%) patients, Colorectal 313 (14%), Stomach 276(12%), Liver 228(9%), Gall bladder and Billiary tract 103(4%), Pancreas 64(3%), Small Intestine 55(2.4%), Anal canal 52(2.2%) and other sites 09(0.4%)(Figure 3).

The year wise study includes male Balochistani, female Balochistani, male Afghanistani and female Afghanistani from 2001 to 2010.

In males Balochistani total G.I.T tumor patients 794 (35%); Ca Esophagus 38%, Ca Colo rectum 20%, Ca Stomach 16.9%, Ca Liver 13%, Ca Gall bladder and biliary tract 3.2%, Ca Small intestine, Ca Pancreas, 3% each, Ca Anal canal 2.8% and other sites (0.1%) (Figure 4).

In female Balochistani total G.I.T tumor patients 609 (27%); Ca Esophagus (49%), Ca Colo rectum (12%), Ca Stomach(11%), Ca Liver(9%), Ca Gall bladder and biliary tract(8.6%), Ca Pancreas(3.6%), Ca Small intestine(3%), Ca Anal canal(2.6%) and other sites(1.2%)(Figure 5).

In male Afghanistani total G.I.T tumor patients 525(23%); Ca Esophagus (60.5%), Ca Stomach(12%), Ca Liver(10.4%), Ca Colo rectum(10.2%), Ca Pancreas (1.9%), Ca Small intestine(1.7%), Ca Anal

canal(1.5%),Ca Gall bladder and biliary tract(1.2%)and other sites(0.6%)(Figure 6).

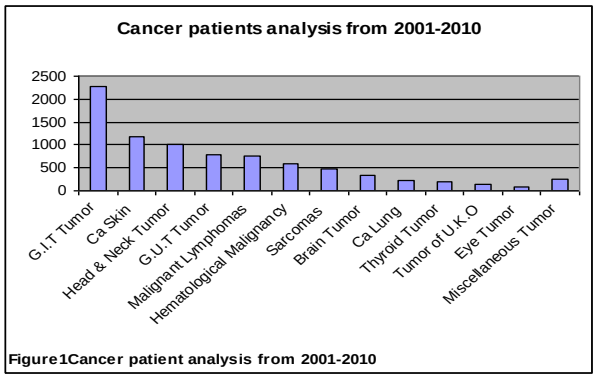

Figure1Cancer patient analysis from 2001-2010

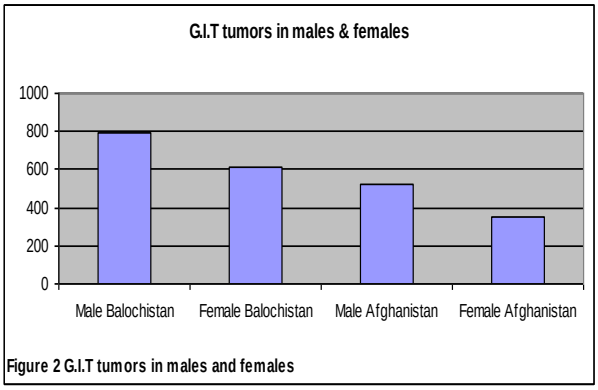

Figure 2 G.I.T tumors in males and females

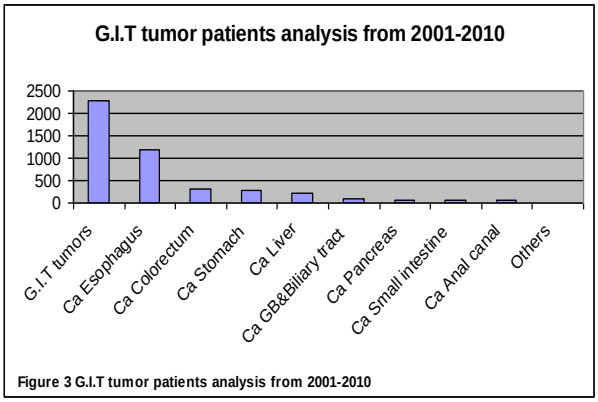

Figure 3 G.I.T tumor patients analysis from 2001-2010

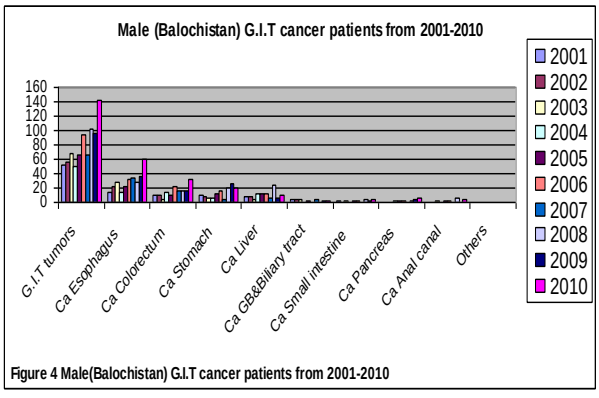

Figure 4 Male(Balochistan) G.I.T cancer patients from 2001-2010

In female Afghanistani total G.I.T tumor patients 350(15%); Ca Esophagus(72.8%), Ca Colo rectum(8.5%), Ca Gall bladder and biliary tract(5.2%), Ca Liver(4.3%), Ca Stomach(4%), Ca Pancreas(2.3%), Ca Anal canal(1.5%),Ca Small intestine(1.2%) and other sites(0.2%)(Figure 7).

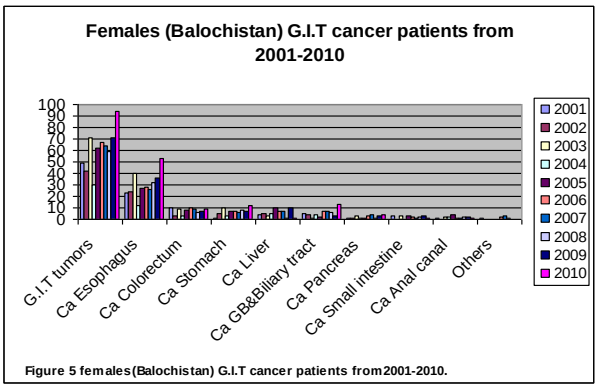

Figure 5 females(Balochistan) G.I.T cancer patients from2001-2010.

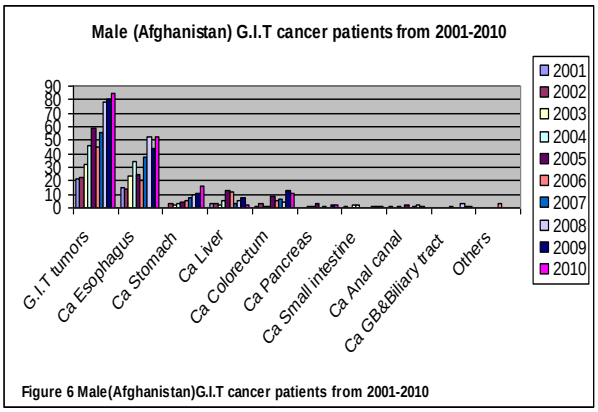

Figure 6 Male(Afghanistan)G.I.T cancer patients from 2001-2010

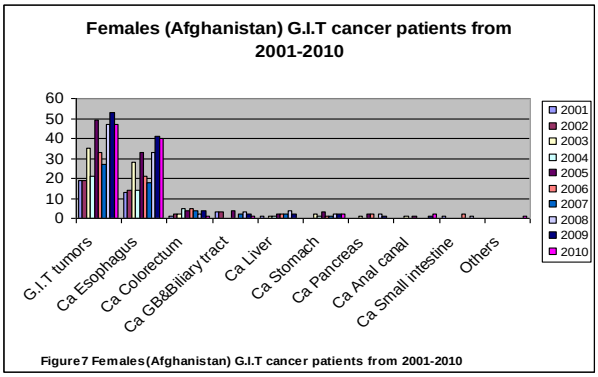

Figure7 Females(Afghanistan) G.I.T cancer patients from 2001-2010

DISCUSSION

Primary Gastro intestinal (GI) malignancy is a global oncological problem. With addition of western life style GI malignancy is increasing in developing country.

Gastrointestinal cancer accounts for 20% of estimated new cancer cases and 15% of estimated death worldwide [19]. A malignancy of the GI tract has been reported as the most common fatal cancer in Iran [20]. In our study, 8324 cases of different malignancies were seen over the 10 year period (2001-2010), gastrointestinal malignancy was 1st most common malignancy with 2278(27%) patients.

Our study confined only various gastrointestinal tract malignancies received during this period in our department.

Ca Esophagus: Esophageal cancer is the eight most common cancer worldwide and the sixth most common cause of cancer related death [19]. Cancer of Esophagus is 3rd most common tumor in Balochistan (Roohullah et al, 2005) while in our study cancer of esophagus is 1st most common tumor in gastrointestinal tract with 1178(51%) patients (Male Balochistani 304(26%); Female Balochistani 301(25.5%): Male Afghanistani 318 (27%); Female Afghanistani 255(21.5%). The tradition of drinking hot salted tea (Khawa) and exposure to dietary amines and nitrates have been recorded as risk factor in this region. Meat cooked in animal fat, dried salt, pickled meat or barbecue or meat cooked over charcoal and staple diet of resident from this region are blamed for high prevalence of esophagus cancer.

The disease is more common in men (Wikipedia, the free encyclopedia) similarly in our study the disease is more common in men 622(53%) as compared to females 556 (47%) with male to female ratio1.1**:**1.0.

Ca Colorectum: Colorectal cancer is the fourth commonest form of cancer occurring worldwide**.** Colorectal is the second most cause of cancer mortality [19]. Colorectal cancer is the fourth most common cancer in men and third in women [21]. It is third most frequent type of cancer in males and females worldwide [4].In our study, cancer of colorectum is 2nd most common type of gastro intestinal tract with 313(14%) patients (Male Balochistani 155 (49.5%); Female Balochistani 74(23.5%): Male Afghanistani 54 (17%); Female Afghanistani 30(10%). The main risk factors for Colorectal cancer in this area include diets low in vegetables and potentially, those high in processed meat and fat; lack of exercise, Smoking and excess body weight. Colorectal cancer is more common in men as compared to female with a male to female ratio 2.54:1(Naila Irum Hadi et al, 2009) similarly in our study, the disease is more common in men209(67%) as compared to females104(33%) with male to female ratio 2.0**:**1.0.

Ca Stomach: Gastric cancer is the fourth most common cancer and the second-third most common cause of cancer death. In Japan, gastric cancer is a leading cause of cancer death [19]. Gastric cancer is still the fourth most common cancer and the second leading cause of cancer-related death worldwide [20] while in our study, cancer of stomach(Gastric cancer) is 3rd most common type of gastrointestinal tract with276(12%) patients (Male Balochistani 134 (49%); Female Balochistani 66 (24%): Male Afghanistani 62 (22%); Female Afghanistani 14 (5%). In this region the common risk factor for stomach cancer includes low social economical status, smoking, low fruit and vegetable intake.

Around 78% of stomach cancer cases in men and 69% in women in the UK in 2010 were linked to lifestyle and environmental factors, it has been estimated. The fact that the proportion was higher in men than women reflects higher prevalence of smoking among men in the past, and their higher salt intake [7]. SEER Stat Fact Sheets estimated that 21,600 men and women (13,230 men and 8,370 women) will be diagnosed with cancer of the stomach in 2013[22]. In our study, the disease is more common in men 196(71%) as compared to women 80(29%) with male to female ratio2.4**:**1.0.

Ca Liver: Liver cancer is the fifth most common cancer in men and the eight in women. Liver cancer is the third leading cause of cancer death in men and the sixth among women [21]. Primary liver cancer is the sixth most common cancer in the world and the third most common cause of cancer mortality [19]. In our study, cancer of liver is 4th most common type of gastrointestinal tract with228 (9%) patients (Male Balochistani 105 (46%); Female Balochistani 53 (23%): Male Afghanistani 55(24%); Female Afghanistani 15 (7%). In this region viral hepatitis (HBV &HCV) is the major cause of liver disease.

Liver cancer is more than twice as high in men as in women [21]. SEER Stat Fact Sheets estimated that 30,640 men and women (22,720 men and 7,920 women) will be diagnosed with cancer of the liver and intra hepatic bile duct in 2013[22] similarly in our study, the disease is more common in men160(70%) as compared to female68(30%) with male to female ratio 2.3**:**1.0.

Ca Gall Bladder and Biliary tract: Gall bladder cancer is relatively uncommon cancer. Gall bladder cancer is more common in some countries including South American countries, Japan, Eastern Europe, Israel and Northern India. In Chile gall bladder cancer is the fourth most common cause of cancer deaths; 5th most common gastrointestinal cancer. In our study, cancer of gall bladder is 5th most common type of gastrointestinal tract with 103(4%) patients (Male Balochistani 27(26%); Female Balochistani 52(50%): Male Afghanistani 06 (6%); Female Afghanistani 18(18%). The obesity increases the risk for gall bladder. It's more common in women than men [16]. Up to 5 times more common in women than men depending on population(e.g 73% female in) [15] similarly in our study, the disease is more common in females 70(68%) as compared to male 33(32%) with female to male ratio 2.1**:**1.0.

Ca Pancreas: In the US, Pancreatic cancer is 9th or 10th most commonly diagnosed cancer (depending on gender), but the fourth leading cause of cancer death in men and women [21]. Pancreatic cancer ranks the fourth and fifth most common cancer in men and women [19]. In our study, cancer of pancreas is 6th most common type of gastrointestinal tract with 64(3%) patients (Male Balochistani 24 (37.5%); Female Balochistani 22

(34%): Male Afghanistani 10 (16%); Female Afghanistani 8 (12.5%). In this region the common risk factor for pancreatic cancer includes diet high in red meat, fat, diet low in fruits and vegetables.

SEER Stat Fact Sheets estimated that 45,220 men and women (22,740 men and 22,480 women) will be diagnosed with cancer of pancreas in 2013 [22]. In our study, the disease is more common in men 34(53%) as compared to women 30(47%) with male to female ratio1.1**:**1.0.

Ca Small Intestine: Small intestine cancer is quite uncommon and accounts for less than 2% of all gastrointestinal cancers [12]. In our study, cancer of small intestine is 7th common type of gastrointestinal tract with 55(2.4 %) patients (Male Balochistani 24 (44%); Female Balochistani 18 (33%): Male Afghanistani 9 (16%); Female Afghanistani 04 (7%).

Men have higher rates of all types of small bowel cancer than women do, with a male-to-female ratio of 1.4:1[13]. Similarly in our study, the disease is more common in men 33(60%) as compared to female 22(40%) with male to female ratio1.5**:**1.0.

Ca Anal Canal: Anal cancer is fairly uncommon, and accounts for about 1-2% of cancer affecting the intestinal tract [17]. In our study, anal cancer is 8th common type of gastrointestinal tract with 52(2.2%) patients (Male Balochistani 23 (44%); Female Balochistani 16 (31%): Male Afghanistani 8 (15%); Female Afghanistani 05 (10%).

SEER Stat Fact Sheets estimated that 7,060 men and women (2,630 men and 4,430women) will be diagnosed with cancer of anal canal [22] while in our study the disease is more common in men31(60%) as compared to female21(40%). with male to female ratio 1.4**:**1.0.

Management of cancer is one of the global challenging health problems. As cancer management is a complicated multidimensional health problem, so in developing countries its management is in primary stages. Data collection concerned to cancer management is poorly established in our clinical setting. This article is a step forward to this direction for research workers and clinicians for improvement of health care delivery system.

Public education for preventive measures, cancer awareness for early diagnosis and good prognosis is necessary.

Better health care facilities should be available to all our patients through better treatment planning system by a multidisciplinary team.

Most finding in the present study did not concur with published western data, indicating the need to study cancer in the Asian population independently as there may be different Genetic environmental and geographical factors responsible for G.I.T tumors in this region of world.

CONCLUSION

This result shows that in Balochistan including adjustant Afghanistan most common type of cancer/malignancy was GI among all malignancies. GI malignancy occurs among male most commonly, the esophagus being the most common site. Mostly (more than half) presented cases are in Stage III and Stage IV cases.

Cancer management is a global health problem specially in this part of world due to lack of awareness, early diagnosis, better treatment system in multidisciplinary team as indicated in this article need of future research in G.I.T and other tumors.

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