Original Article

Analysis of the Prevalence of Cancer in Faisalabad: A Single Centre Study

Sadia Hameed, Arif Hussain, Naima Javed, Habib Subhani

ABSTRACT

Objective: To analyse the prevalence of different types of malignancies presenting to one centre in Faisalabad over a period of 3 years. **Study Design:** A retrospective study. **Place and duration of study:** The study was conducted at Meezan Lab from January 2007 to December 2009. **Materials and methods:** All the consecutive specimens presenting for histopathology were included in the study.
Results: The total number of biopsies dealt with during this period was 3926 out of which 564 were malignant. The male to female ratio was 1:1.19. The peak age for presentation was between 51-70 in males, while it was 31-50 in females. In males the top five tumours involved the lymph nodes 43(16.6%), prostate 40(15.5%), urinary bladder 28(10.8%), skin 24(9.3%) and vocal cords 16(6.2%). Among females the most frequently seen tumours were breast 101(33.0%), skin 30(9.8%), lymph node 20(6.5%), ovary 19(6.2%) and esophagus 16(5.2%). **Conclusion:** The incidence of malignancies appears to be on the rise. This could be due to an increased level of awareness in the patients causing them to present earlier. There is the need to set up a population based tumour registry on a national level to calculate the true incidence. **Key Words:** Malignant tumours, Frequency, Analysis

INTRODUCTION

The burden of cancer is increasing worldwide despite the advances for diagnosis and treatment. It is estimated that in the year 2008 worldwide 12.4 million new cases of cancer were reported and 7.6 million people died[1]. According to the National Vital Statistics Report malignancies were the second most common cause of death in USA in 2006[2]. The estimates from Europe are that 3.2 million new cases and 1.7 million deaths from cancer were seen in 2008[3]. The incidence of cancer is steadily increasing in underdeveloped countries. More than half of the new cases and around 60% of the cancer related deaths occurred in these countries. It is predicted that by 2030 there will be approximately 20 million new cases and 12.9 million deaths related to cancer. An estimated 75% of cancers will be prevalent in under developed countries. There are marked differences in distribution of different cancers in different regions of the world[1].

Epidemiological studies have shown that many cancers may be avoidable. It is widely held that 80-90% of the human cancers may be attributable to environmental and life style factors such as tobacco, alcohol and dietary habits [4]. Measures regarding cancer prevention are being adopted and various programs, modified diets and dietary supplements are being recommended[5].

Cancer incidence is defined as the number of new cases that occur in a defined population in a specified period of time. The incidence is determined by the exposure to etiologic factors and individual susceptibility and may be further affected by screening practices, health care access and quality of care[6]. The most frequently affected organs in the order of frequency are breast, lung and bronchus, prostate, colon and rectum and uterus[7].

Punjab is the most populous of all provinces of Pakistan and Faisalabad is the second largest city with an estimated population approaching 3 million[8]. We present a report of the tumour prevalence data for three years from one of the centres in Faisalabad.

MATERIALS AND METHODS

This was a retrospective study confined to biopsy specimens received at the histopathology department of Meezan Lab. The period of study was 3 years from 2007 to 2009. Haematological malignancies were not included. Clinical notes were obtained from the history files of the patients including their personal data, clinical presentation and type of biopsy. The tissue was processed in a tissue processor and paraffin blocks were made. Sections were prepared and stained with haematoxylin and eosin dyes. Cytochemical stains were used where needed. The slides were examined by a consultant and results were recorded.

RESULTS

During the period of study a total of 5307 biopsy specimens from 3924 cases were examined in the histopathology department of Meezan Lab. Out of these 564 (14.46%) cases were diagnosed as malignant. There were 258 (45.7%) males and 306 (54.3%) females. The male to female ratio was 1:1.19. The age distribution of the cases is depicted in Figure 1. The age of the patients involved varies in both sexes. It was seen that most males belonged to an older age group [51-70 (43.8%)] compared to females [31-50(52.6%)]. There were 24 (4.2%) cases under the age of 15 years.

In males the top five tumours involved the lymph nodes 43(16.6%), prostate 40(15.5%), urinary bladder 28(10.8%), skin 24(9.3%) and vocal cords 16(6.2%). Among females, breast 101(33.0%), skin 30(9.8%), lymph node 20(6.5%), ovary 19(6.2%) and esophagus 16(5.2%) were the top five tumours. The list of the organs involved in males and females is given in Table 1 and Table 2.

It was noted that in males 28(65%) of the lymph nodes were due to lymphoma, both of the Hodgkin's and non Hodgkin's variety while in the females 13(65%) were due to metastatic disease. Infiltrating ductal carcinoma was the commonest tumour 83(82%) seen in the female breast. Squamous cell carcinoma was commonly seen in males 18(43%) and females 13(75%).

DISCUSSION

Cancer is one of the important causes of morbidity and the magnitude of the problem is gigantic. Its burden on the economy for providing health care will be substantial. For the treatment of cancer patients, hospital beds sophisticated equipment, machinery, drugs and other health care facilities such as trained nurses, oncologists, large number of hospital days are required. In addition to this the indirect costs such as loss due to premature deaths, loss due to hindrance of productivity, economic dependence etc. cannot be quantified. Hence cancer prevention and control is the most appropriate measure[5].

Pakistan is lacking a central cancer registry as is established in the developed countries. A program on these lines was started as the Karachi Cancer Registry (KCR) in 1995[9]. This covers the area of Karachi South and is providing us with the required data for the population of that area. The Aga Khan Cancer Surveillance for Pakistan (ACSP) was set up in 2000. It set up the Aga Khan University Pathology Based Cancer Registry (APCR)[10]. Both these organizations have cooperated and provided us with a lot of data[11,12,13,14].

This retrospective analysis of cancer suggests a pattern similar to that reported from other centres. In developing countries like ours where reliable cancer estimates are not available, we have to rely upon cancer frequency data from institutions [13,18,21,23] Most of the studies which have been presented, including this one, are based on the patient population presenting to that centre. Thus the figures are, to an extent, dependent upon the special interest of the clinicians who are practicing around that centre.

The pattern of cancer distribution in both males and females is different. Our study had a preponderance of females. This is in accordance with the reported figures from various centres in Pakistan and abroad[15,16,17]. We also noted that female cases tend to belong to a younger age group compared to males. The same has been noted from other studies from Faisalabad, Dir, Iran and Lahore[15,18,19,20,21].

Tumours involving the lymph nodes were the commonest in males. More than half of these were due to lymphomas and the rest due to metastatic disease. The same sort of prevalence has been noted in the study from Dir but it was the second commonest in that from Faisalabad[15,18]. Other studies have shown a preponderance of tumours involving the lungs but as has been mentioned before the pitfall in the institution based studies is that the data in physician specific.

The frequency of cancer of the prostate is increasing gradually. It is the commonest male tumour in most

studies reported from Europe, USA and Faisalabad[3,7,15]. The most probable reasons for this increase is increased awareness of the patients, availability of screening methods, improvement in the treatment modalities and a relative increase in the life expectancy of the patient population.

In females, breast tumours were the most frequent in all studies[15-24]. It has been reported to be the commonest tumour seen in Europe[3]. Involvement of the skin was the next commonest in our series. This is in variance to other studies, in which the female genital tract was the next common variety[15,23].

We have compared the nature of the most frequently seen five tumours in males and females (Table 3 and Table 4) from various studies in Pakistan over the years[13,15,22,27]. In males tumours involving the prostate were the commonest in most of the studies except that from Hyderabad while it was the second commonest in our study. In females we noted that breast tumours were the commonest in all studies in Pakistan.

It is therefore strongly recommended that an information gathering and retrieval system be established and standardized within all the public sector based cancer centres in Pakistan. This will leading to the formation of public sector based cancer registry in the country. In a country with limited resources this is the mot cost effective method by which reliable information can be obtained regarding the cancer burden in Pakistan. Such data along with findings of other cancer registries working in the country can then be used executing and monitoring the National Cancer Control Program (NCCP).

CONCLUSION

We conclude that this analysis and its comparison with other national and international studies showed some notable features. High prevalence of uterine carcinoma in females as in other national and international studies is confirmed. Certain tumours, like prostate, thyroid, and urinary bladder may be more common in this region. Variation in the rest of the tumours may be department/Institution based. Like data from CMH Lahore may be biased toward s radiosensitive tumours. There is a great deficiency in Pakistan regarding population based tumour registries so efforts are required at government level for the establishment of population based tumour registries so that more biases can be avoided. In the end the studies like ours may provide useful information that can be utilized for health planning and future research.

Figure 1:
Age Wise Distribution of Cases of Malignancy – Total 564

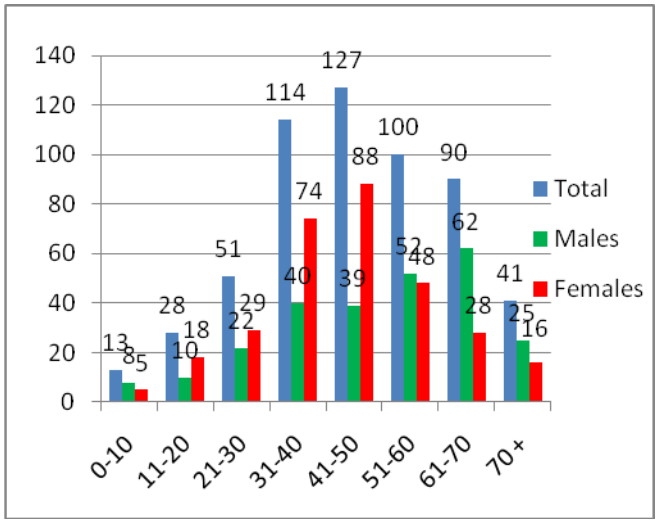

Table 1:
Distribution of Cases Of Malignancy In Males- Total 258

Lymph Node	**43**	**Nasal Cavity**	**8**	**Testis**	**4**	**Brain**	**1**
Prostate	**40**	**Esophagus**	**6**	**Oral Cavity**	**4**	**Intrathoracic**	**1**
Bladder	**28**	**Kidney**	**6**	**Larynx**	**3**	**Lip**	**1**
Skin	**24**	**Ileum**	**5**	**Piriform Fossa**	**3**	**Mesentry**	**1**
Vocal Cord	**16**	**Tongue**	**5**	**Bone**	**3**	**Omentum**	**1**
Soft Tissue	**14**	**Anal Canal**	**5**	**Stomach**	**2**	**Salivary Gland**	**1**
Rectum	**12**	**Colon**	**4**	**Maxilla**	**1**	**Retroperitoneal**	**1**
Pharynx	**10**	**Liver**	**4**	**Band**	**1**		

Table 2:
Distribution of Cases of Malignancy in Females- Total 306

Breast	101	Thyroid	10	Endometrium	3	Stomach	2
Skin	30	Gall Bladder	8	Kidney	3	Salivary Gland	2
Lymph Node	20	Soft Tissue	7	Vocal Cord	3	Nasal Cavity	1
Ovary	19	Bladder	7	Anal Canal	3	Appendix	1
Esophagus	16	Retroperitoneal	5	Vagina	3	Lip	1
Pharynx	14	Liver	4	Intestine	3	Tongue	1
Cervix	12	Rectum	4	Bone	2	Vulva	1
Uterus	12	Tonsil	4	Omentum	2	Larynx	1
						Tooth	1

Table 3:
Comparison of Frequency of Commonest Tumours in Males

	1986-1990	1992-2001	1998-2002	1998 - 2002	2007-2009
	PMC[15]	AFIP[22]	CMH Lhr[23]	KCR, Hyderabad[13]	Meezan
1	Prostate	Prostate	Prostate	Oral Cavity	Lymph node
2	Haematologic	Skin	Lymph Node	Lymphoma	Prostate
3	Lymph Node	Lymph Node	Urinary Bladder	Lung	Urinary Bladder
4	Colorectal	Haematologic	Skin	Urinary Bladder	Skin
5	Skin	Urinary Bladder	Soft Tissue	Prostate	Vocal Cord

Table 4:
Comparison of Frequency of Commonest Tumours In Females

	1986-1990	1992-2001	1998-2002	1998 - 2002	2007-2009
	PMC[15]	AFIP [22]	CMH Lhr[27]	KCR, Hyderabad[13]	Meezan
1	Breast	Breast	Breast	Breast	Breast
2	Ovary	Skin	Uterus	Oral Cavity	Skin
3	Cervix	Haematologic	Lymph Node	Gall Bladder	Lymph Node
4	Gall Bladder	Ovary	Thyroid	Esophagus	Ovary
5	Lymph Node	Colorectal	Skin	Cervix	Esophagus

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AUTHORS

- **Dr Sadia Hameed**
  DCP, M. Phil (Histo)
  Associate Professor of Pathology, University Medical & Dental College, Faisalabad
- **Dr Naima Javed**
  M. Phil (Pharmacology)
  Assistant Professor of Pharmacology, University Medical & Dental College, Faisalabad
- **Dr. Habib Subhani**
  FCPS (Medicine) Associate Professor of Medicine, University Medical & Dental College, Faisalabad
- **Dr. Arif Hussain**
  MCPS, M. Phil (Haem)
  Senior Demonstrator, Department of Pathology, Punjab Medical College, Faisalabad

Contact Address:

- **Sadia Hameed,**
  1-B, Staff Colony, Punjab Medical College, Faisalabad
  041-878 3256
  0333-652 5500
  sadiahameed@yahoo.com