

Special Report

Progress of Oncology in Pakistan

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At the time of the birth of Pakistan in 1947 surgery was the only cancer treatment modality available in few teaching hospital in Punjab and Sindh. The first radiotherapy centre in Pakistan was established in 1950 at MAYO hospital Lahore. Other centres followed in 1952 at Karachi and 1959 in Multan. Between 1960 – 2005, 26 more treatment facilities were established by provincial governments and atomic energy commission in teaching hospitals. These are mostly clinical oncology centres headed by radiation oncologists also providing cytotoxic chemotherapeutic interventions. (NWFP 2 Punjab 11, Sindh 8 Balochistan 1 Federal Area (Islamabad) 4). First medical oncology department was established in private sector at Agha Khan University Hospital 1980 and first department of medical oncology was established 1988 at Allama Iqbal Medical College Lahore.

Out of 26 functional centres 20 are in the public sector and 6 are in the private sector. These centres have diagnostic (pathology and imaging) and (treatment radiotherapy and chemotherapy) facilities. Presently there are about hundred oncologists in Pakistan. Out of these 80% are radiation oncologists or clinical oncologists. The rest are medical and pediatric oncologists. Surgical oncology is practiced by general surgeons with special interest in cancer surgery. Unlike as in India surgical oncology as a subspecialty is lacking in Pakistan. There are no full time formally trained surgical

oncologists. Middle tier oncology professionals like physicists, technicians, specialist nurses are not adequate and there is dire need for further training for quality assurance.



During the last 3 years bone marrow transplantation has been started in three institutions in the country. Basic research in cancer especially molecular biology is still in infancy being conducting only in one research institute.

As in most developing countries, cancer incidence is increasing in Pakistan. Lack of national or even adequate provincial population based cancer registries have hampered the emergence of clear trends of cancer incidence. Cancer prevalence data is available in the form of hospital and departmental based records in twenty-six cancer centres in the country. This is fairly well maintained in the departments of oncology and pathology.

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According to WHO estimates Pakistan should have more than 175000 new cancer patients annually but all cancer treatment facilities register only just above 50000 new patients annually. The rest of the patients are either not diagnosed or are unable to reach the diagnostic or treatment facilities.

Comprehensive prevalence data was accumulated in 1980 by the multi centre tumour study under the Pakistan Medical research council (Table 1) and armed forces institute of pathology (AFIP).

These organizations published monographs. According to which in the Southern part of the country cancer of the bronchus is most common cancer in males and carcinoma of the breast is the most commonest cancer in females while head & neck cancer is the commonest in both males and females.

Another data of cancer prevalence from a pathology department based (Armed Forces Institute of Pathology) in the Northern part of the country was published in their monographs during the last 40 years (see tables 2 & 3). This data reveals change in the pattern of cancer prevalence in the males that is initially lymphoma most commonest male cancer. In the latest figures prostate is the most common.

No population based cancer incidence data has been published in Pakistan during the first fifty years. First cancer registry and incidence data for period 1995 – 1997 for population of Karachi south (1.7 million) was published in international journal of cancer³. According to this data of 4268 new patients (Table 4) the incident rate of all cancers combined were 80.5 / 100,000 see table 2 for the most commonest cancer according to this patient data. This incidence data also revealed that

**Table -1 10 most common malignancies in Males and Females
(Pakistan Medical Research Council)
National data from 6 radiotherapy departments
1973-1974**

	Males (4427)	Females (3569)
1.	Oral 12.6%	Breast 24.4%
2.	Metastatic 8.5%	Oral 11.9%
3.	Skin 8.1%	Cervix 8.7%
4.	Lung 7.4%	Metastatic 6.1%
5.	Pharynx 6.1%	Oesophagus 4.4%
6.	Intestine 5.7.%	Ovary 4.3%
7.	Larynx 5.2%	Uterus 3.4%
8.	Bone 5.1%	Bone 3.4%
9.	Oesophagus 4.6%	Pharynx 3.2%
10.	Lymphoma 3.3%	Lymphoma 1.7%

**Table - 2 Ten commonest tumours in Males
(AFIP Northern Pakistan data)**

Sr. No.	1960-1964 (n=251)		1977-1988 (n=8112)		1992-2001, Present study (n=12584)	
	Site	%	Site	%	Site	%
1.	Lymphnode	14.74	Lymphnode	9.62	Prostate	9.44
2.	Bronchus	8.76	Leukaemia	9.09	Skin	8.38
3.	Colorectal	7.56	Bronchus	7.21	Lymphnode	8.35
4.	Skin	6.77	Skin	6.67	Leukaemia	7.83
5.	Larynx	5.17	Prostate	6.63	U. Bladder	7.66
6.	Bone	4.78	Colorectal	5.54	Colorectal	6.37
7.	CNS	3.18	U. Bladder	4.37%	Bone	4.40
8.	Soft tissue	3.18	Bone	3.80	Lung	3.75
9.	Stomach	2.38	Stomach	2.76	Stomach	3.24
10.	Prostate	1.99	Soft tissue	2.48	Liver	2.81

incidence of breast cancer in female is highest for any Asian population except Jews in Israel. Also tobacco smoking is estimated to be responsible for 40% of cancer in males and tobacco chewing for further substantial proportion of head & neck cancer.

On comparing retrospective data from North and South (see tables 5 & 6), it is clear that there is variation in the cancer prevalence in Pakistan in different in Northern and Southern parts. Lung cancer is most commonest cancer in males and breast cancer remains the most commonest cancer in females in most parts of the country, followed by oral cavity.

Pakistan Society of Clinical Oncology is the largest elected body of oncologists. The society is involved in cancer control measures like public awareness about prevention and early detection of cancer, educational workshops for medical community and continuing medical education programs for oncologists and allied

professionals. The society is also involved with medical schools and universities for modification of undergraduate and postgraduate curriculum in oncology according to the needs. The high cost of cytotoxic drugs in Pakistan is hampering the treatment delivery. The society has launched a campaign to lower the prices within the reach of common man by interacting with the government and pharmaceutical industries.

Research initiatives including prospective clinical trials were initiated during the late 1980 and progressively a cancer research group of Pakistan (CRG) emerged in 1999. This cancer research group which is working under the auspicious of the society has made major strides by conducting phase II & III trials during the last ten years. This work has been appreciated and published in the peer reviewed journals nationally and internationally.

During the first 40 years the only postgraduate qualification offered in Pakistan was a diploma course in radiotherapy that is DMRT offered by one or two universities. The College of physician and surgeons of Pakistan (CPSP) started its fellowship that is FCPS radiotherapy and medical oncology in the late 1980. This qualification is comprehensive and has a structured course with more emphasizes

on clinical training and research. Presently there are more than thirteen FCPS radiation oncologists and about five FCPS medical oncologists in the country.

In spite of the resource constraints Pakistan has made progress in development of oncology

**Table - 3 Ten commonest tumours in Females
40 years period
(AFIP Northern Pakistan data)**

Sr. No	1960-1964 (n=132)		1977-1988 (n=5906)		1992-2001, present study (n=8584)	
	Site	%	Site	%	Site	%
1.	Breast	27.8	Breast	26.6	Breast	26.0
2.	Cervix	9.0	Skin	5.63	Skin	8.5
3.	Colorectal	8.37	Ovary	4.83	Leukaemia	4.91
4.	Skin	6.55	Leukaemia	4.53	Ovary	4.78
5.	Lymphnode	5.73	Cervix	4.20	Colorectal	3.85
6.	Soft tissue	4.9	Lymphnode	3.69	Lymphnode	3.28
7.	Larynx	3.27	Colorectal	3.45	Bone	3.25
8.	Endometrium	2.45	Gall Bladder	3.42	Liver	2.81
9.	Thyroid	2.45	Thyroid	3.06	Cervix	2.69
10.	Bone	2.45	Bone	2.31	Gall Bladder	2.49

**Table - 4 Cancer incidence in Karachi: Karachi Cancer Registry
1995-1997**

	Males (n=2160) (ASR 136.7/100,000)	Females (n=2108) (ASR 163.2/100,000)
1.	Lung (ASR 20.3)	Breast (ASR 51.7)
2.	Oral Cavity (ASR 13.8)	Oral Cavity (ASR 14.1)
3.	Larynx (ASR 8.6)	Ovarian (ASR 10.2)

Table - 5 Comparison of Northern & Southern Pakistan data in Males

	Northern Pakistan		Southern Pakistan			
	AFIP Registry Present Study 1992-2001 (n=12584) Retrospective		Karachi cancer registry 1995-1999 Population based		JPMC Karachi (N=4193) Retrospective	
1.	Prostate	9.4%	Lung	11.3%	Bronchus	14.42%
2.	Skin	8.3%	Oral Cavity	7.7%	Hypopharynx	12.9%
3.	Lymphnode	8.3%	Larynx	5.8%	Oral Cavity	12.4
4.	Leukaemia	7.8%	U. Bladder	5.4%	Oesophagus	7.9%
5.	U. Bladder	7.6%	Lymphnode	4.8%	Leukaemia	6.5%
6.	Colorectal	6.3%	Colorectal	4.1%	Larynx	6.0%
7.	Bone	4.4%	Prostate	4.0%	Liver	3.7%
8.	Lung	3.7%	Oesophagus	4.0%	Skin	3.5%
9.	Stomach	3.2%	Liver	2.9%	Oropharynx	3.5%
10.	Liver	2.8%	Pharynx	0.6%	U. Bladder	3.3%

Table - 6 Comparison of Northern & Southern Pakistan data in Females

	Northern Pakistan		Southern Pakistan			
	AFIP Tumours Registry present study (n=8584) 1992-2001 Retrospective		Karachi cancer registry 1995-1999 Population based		JPMC Karachi n=4193 Retrospective	
1.	Breast	26.0%	Breast	56.6%	Breast	20.8%
2.	Skin	8.5%	Oral Cavity	15.4%	Oral Cavity	14.0%
3.	Leukaemia	4.9%	Ovary	9.6%	Cervix	10.6%
4.	Ovary	4.7%	Cervix	7.4%	Oesophagus	8.0%
5.	Colorectal	3.8%	Oesophagus	7.0%	Hypopharynx	5.3%
6.	Lymphnode	3.2%	Lymphnode	5.7%	Leukaemia	4.7%
7.	Bone	3.4%	Corpus	5.6%	Ovary	4.3%
8.	Liver	2.8%	Skin	5.3%	Liver	3.9%
9.	Cervix	2.6%	Colorectal	5.0%	Oropharynx	3.1%
10.	Gall Bladder	2.4%	Gall Bladder	4.9%	Uterus	2.8%

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