
Pattern of Malignant Tumors among Cancer Patients during the Year 2014 in Minia Governorate, Egypt

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Abstract

Background: Cancer registries are a unique source of information for any cancer control program. These data help in the allocation of financial and manpower resources and facilitate detection of carcinogens and monitoring of environmental carcinogens. **Objectives:** To describe the pattern of cancer diagnosed in Minia governorate during the year 2014 and the distribution of different types of cancer according to patients' sociodemographic criteria and to identify the most common risk factors for common cancer types. **Method:** Hospital based cross sectional study has been carried out in two phases; Phase I: Data of cancer patients diagnosed and recorded during the period from January to December 2014 in Minia University Hospital, Minia Oncology Center and Minia health insurance Hospital were collected. Phase II: A subsample was taken from cancer patients representing nearly 10% of each cancer site of our sample and according to total number of patient records retrieved from each hospital during their follow up visits. Patients were interviewed by a structured questionnaire used for data collection. **Results:** Liver cancer was the most frequent type of cancer represented (18.1%) of all cancer cases, accounting for (24.6%) in males and (9.1%) in females, while breast cancer was the 2nd most frequent type of cancer by (16%). **Conclusion:** Results demonstrated that liver cancer was the most frequent type of cancer of all cancer cases, predominantly in males followed by breast cancer which ranked 2nd but occur almost exclusively and most common type in females, with a widespread illiteracy and defective education among cancer patients.

Key Words: *Cancer – Pattern – Sociodemographic – 2014 – Minia.*

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Introduction

Cancer is the second most frequent cause of death in the majority of developed countries; it has moved from the third leading cause of death in 1990 to the second leading cause behind cardiovascular disease in 2013 and is emerging also as a major public health problem in developing countries. It was estimated that about 11 million new cases of cancer and more than 6 million deaths occur annually. Approximately 7 million people live with cancer and more than half of the cases arising in developing countries where resources for treatment and prevention are very

limited.¹ Many of the greatest reductions in the morbidity and mortality of cancer are result of advances in cancer prevention that occurs when we have learned more about the factors that increase a person's risk of developing cancer. Healthy approaches to living can also reduce cancer recurrence and improve outcomes following a cancer diagnosis. However, more research and resources are needed to understand how best to help individuals change their lifestyle.²

Method

Hospital based cross sectional study carried out in two phases: *Phase I*: Data of all cancer patients diagnosed during the period from January to December 2014 in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital were collected from their medical files. *Phase II*: a simple random sample was taken as a subsample from phase I data at nearly 10% of patient's number in each hospital where they were interviewed during their follow up visit to these hospitals by a structured questionnaire used for data collection.

Statistical analysis

All data entry and statistical calculations were done using computer program; SPSS (Statistical Package for the Social Science; SPSS Inc., Chicago, IL, USA) version 19 for Microsoft Windows.

Graphics were done by Excel Microsoft office 2007.

Quantitative data were presented by mean and standard deviation, while qualitative data were presented by numbers and percentage.

Chi square test was used as a test of significance among quantitative data with a probability of less than 0.05 was used as a cut off point for all significant tests.

Ethical consideration

Approval was taken from the ethical committee of Faculty of Medicine in Minia University and from General Secretariat of specialized medical centers to conduct the study. Informed consent was taken from patients to participate in phase II of the study.

Study limitation

In Phase I, difficulties to obtain official approval for retrieving patients' files, Archive employee were uncooperative and annoyed with such extra work and disturbed file arrangement from their point of view. In Phase II, dealing with cancer patients was not an easy job, they need special communication skills, some patients were uncooperative and refused to participate in the study because of their bad psychological or physical condition.

Table 1: Distribution of most common recorded cancer cases among males and females in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital from January the 1st to December 31th, 2014:

	Male		Female		Total	
	No	%	No	%	No	%
Liver	533	25.2	141	8.8	674	18.1
Breast	2	0.1	591	36.9	593	16
Urinary Bladder	331	15.7	76	4.7	407	11
NHL*	159	7.5	79	4.9	238	6.4
CNS**	114	5.4	113	7	227	6.1
Lung	143	6.8	54	3.4	197	5.3
Leukemia	103	4.9	77	4.8	180	4.8
Colorectal	90	4.3	64	4	134	4.1
Total	1475	69.9	1195	74.5	2670	71.8‡
	X ² = 100.9		p<0.001		df=25	

% Based on rows, *NHL= Non – Hodgkin Lymphoma **CNS= brain and nervous tissue, ‡(71.8%) =represents most common types of cancer

Results

This study included 3714 cancer patients diagnosed during the period from January to December 2014 and their data

were retrieved from patient's records in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital. After retrieval of

patient's files, a subsample was taken from phase I data where the patients were interviewed during their follow up visits.

This subsample represented nearly 10% of total retrieved patient's records of the study sample and stratified according to

Table 2: Distribution of recorded top ten cancer cases according to frequency of site in different age groups in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital from January the 1st to December 31st 2014:

Type of cancer	<20 years		20-40 years		40-60 years		>60 years		
	No.	%	No.	%	No.	%	No.	%	
Liver	0	0	5	2.6	339	27.4	330	29.5	
Breast	0	0	99	52.1	322	26.1	172	15.4	
Urinary bladder	1	12.5	19	10	159	12.8	228	20.4	
Colo-rectal	0	0	28	14.7	86	6.9	40	3.5	
Pancreas	0	0	2	1	61	4.9	23	2	
Lung	0	0	1	0.5	56	4.5	140	12.5	
Larynx	0	0	10	5.2	54	4.3	26	2.3	
CNS**	19	29.7	56	17.1	83	4.8	69	4.4	
Leukemia	21	32.8	10	3.1	97	5.6	52	3.3	
NHL*	7	87.5	26	13.6	106	8.5	99	8.8	
Total	8	100	190	100	1233	100	1116	100	
X²= 100.9				p<0.001				df=75	

% based on column, *NHL=Non- Hodgkin Lymphoma, **CNS= brain and nervous tissue

Table 3: Distribution of interviewed cancer patients according to site of cancer and educational level in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital from October 2015 to January 2016:

Cancer site	Illiterate		Read & Write		Secondary education		University		Total	
	No	%	No	%	No	%	No	%	No	%
Breast	20	29.0	23	33.3	16	23.2	10	14.5	69	100
Liver	23	35.4	15	23.1	19	29.2	8	12.3	65	100
Bladder	15	36.6	8	19.5	13	31.7	5	12.2	41	100
Lung	8	29.6	7	25.9	9	33.3	3	11.1	27	100
Pancreas	3	33.3	3	33.3	3	33.3	0	0	9	100
Bone	1	10.0	5	50.0	1	10.0	3	30.0	10	100
Leukemia	5	29.4	6	35.3	4	23.5	2	11.8	17	100
NHL*	6	18.8	11	34.4	11	34.4	4	12.5	32	100
Larynx	3	27.3	2	18.2	4	36.4	2	18.2	11	100
Colorectum	7	41.2	4	23.5	4	23.5	2	11.8	13	100
Total	91	30.9	84	28.5	80	27.2	39	13.2	294	100
p- value	df=60		X²= 100.9				p=0.001			

N.B. % Based on rows

frequency of each cancer type. The most common 5 types of cancers in males were liver (25%) followed by bladder cancer (15.5%), Non Hodgkin Lymphoma (7.5%), lung cancer (6.7%), and CNS tumors (5.3%), while the most

*NHL=Non-Hodgkin Lymphoma

common 5 types of cancers in females were breast cancer (37.4%), liver cancer (8.9%), CNS tumors (7.1%), Non Hodgkin Lymphoma (5%), and leukemia (4.9%) and this was statistically significant (p<0.001) (table 1).

The most affected age groups were persons aged (40-60 years old) (46.8%) followed by persons aged above 60 years (42.6%), while only (8.8% and 1.7% respectively) occurred between 20 - 40 years and below 20 years old. The most common types of cancer in age group 20-40 years were breast cancer represented (52.1%) followed by colorectal cancer (14.7%). Liver and breast cancer is the most common types in 40-60 years age group, while liver and bladder cancer were the most common types among patients above 60 years old (29.5% and 20.4% respectively) and this was statistically significant ($p=0.0001$) (table 2).



Figure (1): Distribution of different sites of top three cancer types among interviewed cancer patients in Minia University Hospital, Minia Oncology Center and Minia Health Insurance Hospital from October 2015 to January 2016 according to different Minia governorate districts: Cancer distribution in different Minia Districts

In table (3), in the subsample of patients, it was found that illiterate represented (29.7%) and cancer patients who can read and write represented (30.3%), while 2ry educated and university graduated patients accounted for (27% and 13% respectively). The majority of

breast cancer patients can read and write (33.3%), while in liver and bladder cancer patients the majority were illiterate (35.4% and 36.6% respectively). This difference between educational level and different types of cancer was significant ($p=0.001$). In figure (1), it was found that about one third of cancer patients were from Minia district (28.1%), followed by Mallawi district by (14.9%) while El Edwa district had the least number of cancer patients in subsample (3.5%). More than half of interviewed breast cancer patients were from Minia and Mallawi (33.5% and 15.9% respectively) while the least number of them were from El Edwa and Matay (2.9% and 4.3% respectively). Among interviewed liver cancer patients (27.7%) were from Minia followed by (15.4%) from Abo Qorqas while the least number of them were from Maghaga and Matay 1.5% for both. More than a quarter (29.3%) of bladder cancer patients were from Mallawi

Discussion

Preventing cancer from occurring (primary prevention) is the most definitive way to lessen the burden of cancer. For cancer control to advance systematically it requires priority setting and budgeting which require an understanding of the cancer problems that exist in a particular region and the means available to address them. The process by which this logically occurs is cancer control planning. Because of the differences among different countries even in different regions within certain country, cancer control planning and programs must be tailored to individual region situations, recognizing the realities of time and place.⁷

The study of the pattern of cancer may throw some light on the etiology of the disease. Awareness of the most common types of cancer and the magnitude of the problem help to identify risk factors and formulation of screening programs for

common cancer leading to early detection and early management.⁸

It was found that liver cancer was the most frequent type of cancer represented (18.1%) of all cancer cases, accounting for (31.2%) in males and (10.7%) in females. Liver cancer ranked first in males and second in females. This was in agreement with what published by National Population-Based Registry Program of Egypt 2008–2011³ which stated that the most frequent cancers in Egypt was liver cancer (23.8%), accounting for (33.6%) in males and (13.5%) in females and it ranked first in males and second in females. In Egypt, the distribution of liver cancer follows the distribution of HCV, which is more frequent in going south, this explain why in Aswan governorate according to NCRP liver cancer was the 2nd most common type in males accounting for (11.8%) preceded by bladder cancer (12.4%) and in Minia it ranked the 1st one³ (table 1).

Breast cancer was the 2nd most frequent type of cancer by (16%) and it was almost exclusively the most frequent cancer among females accounting for (45.1%) of all cancer diagnosed in females. Male breast cancer was extremely rare accounting for (0.3%) of all breast cancer cases (table 1).

In Egypt 2011, breast cancer represented the 2nd most common type of cancer in both sex (15.9%) and the most common type of cancer in females (32.04%).³ Comparing our results in 2014 and Minia profile results in 2009, it seems that cancer rank at Minia doesn't differ in liver, breast and bladder cancers as they still represent the top 3 types of cancer but there were an increase in number and percentage of cancer patients in these 3 types and other types this may be due to population growth and increase their awareness of cancer through mass media or health education campaigns. In table 2, the most common types of childhood tumors (<20 years) were leukemia

(32.8%) and CNS tumors (29.7%), these findings were near to what were reported by authors⁴ who studied epidemiology of childhood cancer worldwide and founded that the most common cancers in children were leukemia (34%) and CNS tumors (23%), also in Minia profile 2009 the most common tumors among children were leukemia (20.3%) and CNS tumors (14.2%).⁵

Among age group between 20-40 years breast cancer represents (50.1%), followed by CNS and colorectal cancer (16.8%, 8.6% respectively), also lymphoma, bone tumors, thyroid and leukemia are common in this age group (table 2), this was in agreement with⁶ which stated that some of the most common cancers in young adults worldwide were Breast cancer, Lymphoma, Colorectal cancer, Leukemia and CNS tumors.

Liver cancer represented the most common type of cancer among above 60 age group accounted for (29.5%) followed by bladder, breast, lung and prostate cancer respectively (table 2). The most common cancer diagnosed in UK (2010-2012)⁹ at age group (50-74) were Prostate cancer accounted for (28%), lung and bowel cancers and (34%) of cases diagnosed in females aged 50-74 were breast cancers. This difference between our results and UK results is due to difference in distribution of risk factors and cancer pattern between Egypt and UK especially for liver and bladder cancers which represent the main bulk in our cancer patients while prostate cancer is more common in UK than liver cancer in males (15% and 7.5% respectively).¹⁰

In subsample patients (table 3); illiterate and patients who can "read and write" represented more than 50% of patients which displayed the greater impact of illiteracy on cancer knowledge and attitude especially towards early detection and screening.

It was stated that there was a relationship between cancer screening, literacy and cultural barriers.¹¹ In the United States, studying of a large sample that included 4,183 men and 6,708 women showed that illiterate or lower-educated men and women have the lowest rates of cancer screening use compared with higher-educated counterparts in addition to false beliefs e.g. increased age protects them from getting cancer and that cervical cancer is unlikely in the absence of sexual activity. Illiterate patients with bladder cancer represented (36.3%) while university educated represented (12.2%), this simulates other research¹² who studied bladder cancer among 151 cases and 157 controls in Alexandria and found that (40.7%) of cancer patients were illiterate and (13.3%) were university graduate (table 3).

About one third of cancer patients were from Minia district (28.1%), followed by Mallawi district (14.9%) while El Edwa district had the least number of cancer patients in subsample (3.5%), this may be explained by that cancer treatment facilities present mainly in Minia district while other districts as DirMawass and El Edwa was far from capital of Governorate. More than half of interviewed breast cancer patients were from Minia and Mallawi (33.5% and 15.9% respectively) which may be due to largest number of cancer patients from Minia district, while the least number of them were from El Edwa and Matay (2.9% and 4.3% respectively). Among interviewed liver cancer patients (27.7%) were from Minia followed by (15.4%) from Abo Qorqas while the least number of them were from Maghaga and Matay 1.5% for both. More than a quarter (29.3%) of bladder cancer patients were from Mallawi this may be due to high percentage of rural residency and agricultural works in Mallawi (figure 1).

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