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Frequency of Cancers and Their Demographic Characteristics in Patients Referred to Omid Hospital of Urmia

Ali Eishi
Department of Hematology, Urmia University of Medical Sciences, Urmia, Iran

Abstract: Cancer can be defined as the uncontrolled growth of malignant cells. Today, cancer is the second most common cause of death in the world. This study aimed to determine the frequency of cancers and their demographic characteristics (cancer type, gender, age, location and family history) in cancer patients referred to Omid medical center of Urmia City. This study is a cross-sectional and retrospective. The records of 2972 patients referred to Omid hospital of Urmia (Northwest of Iran) in 2010 and 2011 were used. To make easy data analysis, the patients were classified based on age in the age groups of younger than 20, 20-40, 40-60, 60-80, 80-100 and older than 100. Then, the information from the questionnaires was entered in SPSS Software and analyzed. The mean age of the population was 17.80±55.33 years old. The 52.3% of patients were men. In this study, the youngest person were a 2 years old girl and a 2 years old boy and the oldest one is a 107 years old woman. The most common cancers were breast cancer (16.4%), esophageal cancer (11%), stomach cancer (9.7%) and lung cancer (8.5%). The breast, esophageal, stomach and lung cancers were most common in the age group of 20-40 (24.18%), 60-80 (16.8%), 60-80 (12.7%) and 60-80, respectively.

Key words: Cancer, breast, esophagus, bone marrow, stomach

INTRODUCTION

Chronic diseases such as cancer are the most important public health problem in the world (Mirzaei *et al*., 2015). Cancer can be defined as the uncontrolled growth of malignant cells (Ali *et al*., 2014). It is a problem emerging in the field of health and many countries involved (Chen *et al*., 2015a; Pourhoseingholi *et al*., 2014) that in addition to reducing the survival and regeneration it imposes economic and psychological costs on society (Dolatkhah *et al*., 2015). So that psychological problems change is changing from natural comparative emotions to disorders such as anxiety, depression and adjustment disorders (Scheffold *et al*., 2015). About 14 million new cases of cancer and 8.2 million deaths caused by this are reported in the World annually (Scheffold *et al*., 2015). The studies show that the incidence of cancer has increased from 12.7 million in 2008 to 14.1 million in 2012 that the maximum amount of this is related to countries with low and middle-income (Bobdey *et al*., 2015). Today, despite advances in methods of prevention, screening and treatment of certain types of cancer, the incidence of it has increased due to increased longevity of the world's population, smoking, obesity and regimen that the cancer is the second most common cause of death in the world (Fitzmaurice *et al*., 2015). According to the World Health Organization, it was estimated that the incidence of cancer will increase as much as 80-100% in the East Mediterranean countries in the next 15 years (Zahir *et al*., 2014). In Iran, cancer is the third cause of death after heart diseases and accidents (Moghimbeigi *et al*., 2014). Lung cancer has been known as the most common cancer in the world for several decades and it was estimated that in 2012, about 1.8 million others would be infected to it that 58% of them were in less developed countries (Chen *et al*., 2015a, b). Now, this type of cancer has been known as the most deadly type of cancer (Yin *et al*., 2015). Breast cancer is the most common cancer in women (Castello *et al*., 2015) and in 2011, it caused the deaths of >508 thousands women in the World (Ghoncheh *et al*., 2015). In Iran, it is the fifth most common cause of death in women infected by cancer and annually, 8500 new cases infected by breast cancer is reported (LotfnezhadAfshar *et al*., 2015). But it seems that the incidence of this type of cancer will increase due to the increased longevity in the coming years (Enayatrad *et al*., 2015). Stomach cancer is the fifth most common cancer in the world but the incidence of it has decreased due to the treatment of chronic H. pylori infection (Eichelberger *et al*., 2015) but it is still the second cause of death caused by cancer (Soleyman-Jahi *et al*., 2015). Northeast of Iran, especially Gonbad-e-Kavus City, Golestan Province is the high-risk area for stomach and esophageal cancers so that it is estimated that the

incidence of esophageal cancer is 17.6 in men and 14.4 in women per 100000 persons and it is 26.1 in men and 11.1 in women for stomach cancer (Marzoni *et al*., 2015). In a study, it is stated that in Iran, the most common cancers in men are stomach, esophageal, colorectal cancers and in women are breast, esophageal, stomach, colorectal cancers (Sohrabi *et al*., 2014). In children younger than 15 years old, cancer is rare that according to the World Health Organization it was estimated that the incidence of it is 100 per 1 million persons and leukemia cancer, tumors of the central nervous system and lymphomas cancer are the most common cancers in children (Fathi *et al*., 2015). However, it is the second most common cause of death in children after trauma (Giacomazzi *et al*., 2015). Cancer research institute of America estimated that about a quarter of new cancer cases in high-and middle-income countries are preventable with lifestyle changes such as regimen, physical activity and body mass (Ghoncheh *et al*., 2015). Given that knowing the incidence of cancer and the types of cancer in each area can be helpful in surveying the contributing factors of this dangerous disease and the possible ways to prevent it and also up to now no studies have been conducted on the frequency of the types of cancer and their demographic characteristic in this study, on the one hand, the frequency of cancers has been determined in the form of retrospective and descriptive research and on the other hand, demographic characteristics of cancers (type of cancer, gender, age, location and family history) have been studies in cancer patients referred to Omid medical center.

MATERIALS AND METHODS

This study is retrospective and sectional. The data of all of the cancer patients referred to Urmia's Omid hospital during 2010-2011 were taken into consideration and were evaluated. To gather data for the study, a questionnaire was designed and in order to fill in the questionnaire, the data available in patients' health records were utilized. The questionnaire addressed the demographic information (age, sex, living place, family history and type of cancer). After filling in the questionnaires, the data were inserted into SPSS and then were analyzed.

RESULTS AND DISCUSSION

The health records of 2972 cancer patients referred to Urmia's Omid hospital which were gathered through survey were studied. All the information concerning the patients' age, sex, place of living, type of cancer and its morphology and family history were collected by the director of the current project during 6 months from April to September in 2012.

The patients under the study included 1553 (52.3%) males and 1419 (47.7%) females Table 1. The age mean±standard deviation of the population was (55.33± 17.80) in that for females it was 52.68± 17.16 and 57.75± 18.40 for males. The youngest subject was a girl and boy with the age of 2 years and the oldest one was a woman with the age of 107 years. In order to facilitate the process of analysis, the patients were classified based on their age as under 20, 20-40, 60-80, 80-100 and over 100 years. Table 2 depicts the frequency of each group.

With regards the place of living, 1940 patients (65.3%) were from urban areas and 1032 patients (34.7%) were from rural areas (Table 3). As to history of family, only 12.4 patients (4.2%) had history and 2848 (95.8) lacked it (Table 4).

In Table 5, the frequency and percentage of different types of cancers are shown. The frequency of each cancer based on the age group, based on the patients' sex and based on the place of living were presented in Table 2-4, respectively.

Due to the great significance of bone cancers, the frequency of these cancers based on the morphology, age groups, sex and the place of living were presented in Table 6-8, respectively.

In this study, the most common types of cancer are breast cancer (16.4%), esophageal cancer (11%), stomach cancer (9.7%) and lung cancer (8.5%). In this study, the incidence of breast cancer in women was 32.2%. The 47.7% of patient were men. In a cross sectional study in Kerman Province (South East of Iran) on epidemiology of cancer during 6 years, 56.7% of patients were men and the most common cancers were skin, breast, bladder, stomach,

Table 1: The demographic features of the population under the study

Variables	Frequency	Percentage
Sex		
Female	1419	47.7
Male	1553	52.3
Age groups		
>20	94	3.2
20-40	488	16.4
40-60	1151	38.7
60-80	1070	36.0
80-100	166	5.6
>100	3	0.1
Place of living		
Urbane areas	1940	34.7
Rural areas	1032	65.3
Family history		
Yes	124	4.2
No	2848	95.8

Table 2: The frequency of each cancer based on the age group

	Age						
Cancer types	<20	20-40	40-60	60-80	100-80	>100	Total
Adrenal	0	0	0	1	0	0	1
Anal	0	0	0	1	0	0	1
Bile duct	0	0	1	3	1	0	5
BM	34	15	12	12	2	0	75
Bone	13	17	13	8	1	0	52
Brain	11	64	86	48	5	0	214
Breast	1	118	278	81	7	1	486
Cervix	0	9	18	12	1	0	40
Colon	0	1	2	0	0	0	3
Colorectal	2	34	77	80	13	0	206
Duodenum	0	0	0	0	1	0	1
Endometrium	0	2	13	14	0	0	29
Esophageal	0	17	103	180	25	2	327
Gall bladder	0	0	2	7	0	0	9
Gastric	0	20	113	136	19	0	288
Hepatic	0	0	4	1	0	0	5
Intestinal	0	0	1	0	0	0	1
Kaposi's sarcoma	0	0	0	1	0	0	1
Larynx	0	4	30	36	4	0	74
Liver	0	0	0	1	0	0	1
Lung	1	14	101	121	15	0	252
Lymph node	7	55	38	38	2	0	140
Mediastinum	0	0	2	0	0	0	2
Metastasis	0	0	3	0	0	0	3
Mouth	0	3	15	12	4	0	34
Myositisossification	0	1	0	0	0	0	1
Nasopharynx	2	11	30	26	9	0	78
Neuroblastic tumor	6	4	3	0	0	0	13
Neurogenic tumor	4	2	1	0	0	0	7
No cancer	0	1	1	0	0	0	2
Osteoporosis	0	1	0	0	0	0	1
Ovary	0	6	13	14	0	0	33
Pancreas	0	1	16	19	4	0	31
Pituitary	0	8	6	2	0	0	16
Plasma cell	1	1	16	17	4	0	39
Pleural	0	0	0	4	0	0	4
Prostate	0	1	19	44	12	0	76
Rectal	0	0	0	3	0	0	3
Renal	1	1	8	4	1	0	15
Skin	1	14	46	77	15	0	153
Soft tissur	5	23	18	19	2	0	67
Salivary gland	2	5	8	9	0	0	24
Spinal cord	1	2	2	0	0	0	5
Stromal fibrosis	0	0	1	0	0	0	1
Testis	1	25	10	2	0	0	38
Thyoid	0	1	9	10	1	0	21
Unknown	0	4	5	2	1	0	12
Urinary bladder	1	3	22	34	16	0	76
Vascular tumor	0	0	1	0	1	0	2
Total	94	488	1147	1070	166	3	2972

leukemia and colorectal, lung cancers. Finally, it was concluded that the incidence of cancer has increased annually in the research period that can be due to lifestyle changes, increasing exposure to risk factors and increased longevity (Keyghobadi *et al* ., 2015).

In this study, the incidence of stomach cancer is more common in the age group of 60-80 years old (12.7%) and 80-100 years old (11.4%), respectively. According a cross-sectional studied which is conducted in 6 years, it was found that the most common type of stomach cancer in Iran is adenocarcinoma. In this study, it is concluded that the annual incidence of stomach cancer in Iran is gradually increasing (11.1 and 9.2 per 100000 persons in women and men respectively). For this reason, it is recommended that more studies will be done for early diagnosis of cancer and its causes (Almasi *et al*., 2015). According to a descriptive study, in Iran, the stomach cancer was most common in Ardebil, Gilan, Zanjan, East Azerbaijan, West Azerbaijan, Qazvin, Kurdistan, Hamadan, Tehran and Mazandaran (Northern, Northwestern and central areas of Iran) in 2007-2009 (Kavousi *et al*., 2014).

Table 3: The frequency of each cancer based on the gender

	Gender		
Cancer type	Male	Female	Total
Adrenal	0	1	1
Anal	0	1	1
Bile duct	1	4	5
BM	50	25	75
Bone	22	30	52
Brain	129	85	214
Breast	28	458	486
Cervix	0	40	40
Colon	3	0	3
Colorectal	109	97	206
Duodenum	1	0	1
Endometrium	0	29	29
Esophageal	161	166	327
Gall bladder	2	7	9
Gastric	187	101	288
Hepatic	3	2	5
Intestinal	0	1	1
Kaposi's Sarcoma	0	1	1
Larynx	65	9	74
Liver	0	1	1
Lung	203	49	252
Lymph node	82	58	140
Mediastinum	2	0	2
Metastasis	1	2	3
Mouth	17	17	34
Myositisossification	1	0	1
Nasopharynx	59	20	78
Neuroblastic tumor	5	8	13
Neurogenic tumor	3	4	7
No cancer	1	2	2
Osteoporosis	0	1	1
Ovary	0	33	33
Pancreas	18	13	31
Pituitary	7	9	16
Plasma cell	24	15	39
Pleural	1	3	4
Prostate	76	0	76
Rectal	2	1	3
Renal	11	4	15
Skin	98	55	153
Soft tissur	41	26	67
Salivary gland	12	12	24
Spinal cord	3	2	5
Stromal fibrosis	0	1	1
Testis	39	0	38
Thyroid	10	11	21
Unknown	7	6	12
Urinary bladder	68	8	76
Vascular tumor	1	1	2
Total	1553	1419	2972

Table 4: The frequency of each cancer based on the place of living

	Living place		
Cancer type	Rural	Urban	Total
Adrenal	0	1	1
Anal	1	0	1
Bile duct	2	3	5
BM	32	43	75
Bone	22	30	52
Brain	69	145	214
Breast	123	363	486
Cervix	13	27	40
Colon	1	2	3
colorectal	63	143	206
Duodenum	1	0	1
Endometrium	5	24	29
Esophageal	156	171	327
Gall bladder	2	7	9
Gastric	119	169	288
Hepatic	2	3	5
Intestinal	0	1	1
Kaposi's Sarcoma	0	1	1
Larynx	31	43	74
Liver	0	1	1
Lung	100	152	252
Lymph node	42	98	140
Mediastinum	0	2	2
Metastasis	0	3	3
Mouth	8	26	34
Myositisossification	0	1	1
Nasopharynx	27	52	79
Neuroblastic tumor	3	10	13
Neurogenic tumor	2	5	7
No cancer	1	2	3
Osteoporosis	0	1	1
Ovary	8	25	33
Pancreas	10	21	31
Pituitary	4	12	16
Plasma cell	13	26	39
Pleural	2	2	4
Prostate	20	56	76
Rectal	1	2	3
Renal	4	11	15
Skin	62	91	153
Soft tissur	22	45	67
Salivary gland	8	16	24
Spinal cord	3	2	5
Stromal fibrosis	0	1	1
Testis	17	22	39
Thyroid	5	16	21
Unknown	5	8	13
Urinary bladder	23	53	76
Vascular tumor	0	5	2
Total	10323	1940	2972

Table 5: The frequency of bone marrow cancers based on the morphology

Bone marrow cancers	Frequency	Percentage
ALL	44	1.4
AML	15	0.5
CLL	9	0.3
CML	1	0.0
H.L	1	0.0
M.M	4	0.1
Myelofibrosis	1	0.0
Total	75	2.5

In this study, the incidence of lung cancer is more common in the age group of 60-80 years old and 80-100 years old (9%), respectively. According to a retrospective study in Urmia on the survival rate of patients with lung cancer, the average survival rate was 13 months and 1, 2 and 3 years survival rate was 39, 18 and 0.07%, respectively (Abazari *et al*., 2015).

In this study, the incidence of colorectal cancer is more common in the age group of 60-80 years old and 40-60 years old, respectively. According to a prospective study in Fars (Southern areas of Iran), on the factors influencing the mortality of the patients infected by

Table 6: The frequency of bone marrow cancers based on the gender

Bone marrow cancers	Male	Female	Total
ALL	28	16	44
AML	11	4	15
CLL	7	2	9
CML	0	1	1
H.L	1	0	1
M.M	2	2	4
Myelofibrosis	1	0	1
Total	50	25	75

Table 7: Frequency bone marrow cancers based on the place of living

	Living place		
Bone marrow cancers	Rural	Urban	Total
ALL	22	22	44
AML	4	11	15
CLL	5	4	9
CML	0	1	1
H.L	1	0	1
M.M	0	4	4
Myelofibrosis	0	1	1
Total	32	43	75

Table 8: Frequency bone marrow cancers based on the age group

	Age						
Bone marrow cancers	<20	20-40	40-60	60-80	100-80	>100	Total
ALL	29	10	5	0	0	0	44
AML	5	4	2	4	0	0	15
CLL	0	0	2	5	2	0	9
CML	0	1	0	0	0	0	1
H.L	0	0	1	0	0	0	1
M.M	0	0	2	2	0	0	4
Myelofibrosis	0	0	0	1	0	0	1
Total	34	15	12	12	2	0	75

colorectal cancer with different degrees, it was most common in the age group of 45-65 years old. The average age of patients was 53.5±14.50% of them were alive for 5.83 years and a high degree of tumor was associated with higher mortality. Age at diagnosis of women and men was significantly different ($p<0.03$). Finally, it was concluded that there are relationships between ethnicity, positive family history, marital status and smoking and the survival of these patients that smoking and the degree of tumor were more associated (Ahmadi *et al*., 2015). In a case-control study, it was found that stressful events of life (>6 months of unemployment, job and financial problems and family conflicts) increases the risk of colorectal cancer ($p<0.011$) (Azizi and Esmaeili, 2015). In an ecologic study, it was concluded that there are positive relationships between diabetes mellitus, hypertension, physical inactivity, high education, high consumption of dairy products and non-consumption of fruit and vegetable and the incidence of colorectal cancer (Abbastabar *et al*., 2015). But in study by Poomphakwaen *et al*. (2015) it was found that there are positive relationships between the male gender, history of smoking and alcohol consumption (>50 grams per day) and colorectal cancer and there are negative relationships between positive family history, working (>8 h/day) and smoking and colorectal cancer but none of them are significant. In a retrospective study in Qazvin (central area of Iran), it was found that the most common place of polyps in colon was descending at the sigmoid, rectum and colon, respectively and it was concluded that there are no differences between the incidence of polyps, histology and anatomy and the average age of the incidence of polyps in men and women (Hajmanoochehri *et al*., 2014). In a cross-sectional study in Tehran (Capital of Iran) on the incidence of polyps in the colon in people at average risk of colorectal cancer, the overall incidence of polyps was 16.5% of which 86.9% were malignant. In this study, the age group of 50-59 years had the highest risk of neoplasia colorectal which the more advanced adenomas was seen in the age group of 69-60 and also this type of adenomas were more in distal colon (Sohrabi *et al*., 2014). In a review study, it was concluded that among three different chemotherapy regimens (regimen 1: folinic acid + irinotecan + 5 fluoruracil/regimen 2: folinic acid + oxaliplatin + 5 fluoruracil/regimen 3: capecitabine + oxaliplatin) plus rituximab, the drug regimen of folinic acid + oxaliplatin + 5 fluoruracil plus rituximab is the best drug regimen in terms of imposed cost and increase of survival rate of the patients infected by metastatic and non-resection colorectal cancer (Davari *et al*., 2015).

In this study, the incidence of esophageal cancer is more common in the age group of 60-80 years old (16.8%) and 80-100 years old (15%), respectively. In a retrospective study on the incidence of cancer in the digestive system in Iran, the most common cancers were esophageal, stomach, colorectal and liver cancers. esophageal, stomach, colorectal cancers are common in North, Northwest, Northeast and West of Iran while the liver cancer was more common in central, Northeast and South of Iran (Soleimani *et al*., 2015).

In this study, the highest incidence of breast cancer is related to the age group of 20-40 (24.18%) and 40-60 years old (24.15%), respectively. In a prospective study on the survival rate of patient infected by metastatic breast cancer, 3 years survival rate for the age groups of 15-44, 45-59, 60-74 and 75 and older were 85, 90, 80 and 67%, respectively. Finally, it was concluded that the 3 years survival rate of patients becomes less with age (Kasaeian *et al*., 2015). In an ecological study, it was found that the highest incidence of breast cancer in Asia were related to Israel, Lebanon and Armenia, respectively, while the highest mortality caused by it were related to Pakistan, Armenia and Lebanon. Finally, it was

concluded that the mortality rate from this cancer was less in more developed countries (Ghoncheh *et al*., 2015).

In this study, the incidence of stomach and lung cancers is significantly more in men than women. The incidence of breast cancer was more common in urban areas residents than rural areas residents but there were no significant differences between urban areas and rural areas in terms of incidence of esophageal, stomach and lung cancers. In a descriptive study in Mashhad (Northeast of Iran), it was found that in general, the most common cancer was breast cancer and it is diagnosed at a lower age than other cancers and also it has been seen more in women who live in urban areas. The most common cancer in men was esophageal cancer and also the bladder cancer has been seen more in men than women. The least average age of diagnosis of cancer in women was related to breast cancer and in men was related to Hodgkin's lymphoma and also there is a significant difference between different genders in terms of esophageal and stomach cancers (Nikfarjam *et al*., 2014).

In this study, the incidence of nasopharyngeal cancer was reported 2.62% that male to female ratio was 2.95:1. According to a study conducted on the incidence of nasopharyngeal cancer in Iran in 2004-2009, the incidence of this type of cancer was 0.38 per 100000 persons that male to female ratio was 2.08:1 and most of the pathology was related to undifferentiated cancers. In this study it was concluded that the incidence of nasopharyngeal cancer has been increased in men (Safavi *et al*., 2015). In a descriptive study on the epidemiology of head and neck cancer, it was concluded that the incidence of cancer in this part of body is on the rise (4.8 per 100000 persons in 2003 and 7.4 per 100000 persons in 2009). In the study, head and neck cancers had been seen more in men (54%) that the highest male to female rate was related to laryngeal cancer (7.62) which may be due to high cigarette consumption in men (Salehiniya *et al*., 2015).

In this study, kidney cancer was included 0.5% of all patients. In a retrospective study, it was concluded that in Iran, the annual incidence of this type of cancer gradually increased from 2003-2009 (Mirzaei *et al*., 2015).

In this study, the incidence of skin cancer was 5.1%. According to a descriptive study, the skin cancer was most common in men in the provinces of Semnan, Isfahan and Hamadan, respectively and it was most common in women in the provinces of Semnan, Yazd and Isfahan, respectively. It was least common in men in Sistan and Baluchestan Province and in women in Hormozgan Province. Finally, it was concluded that the incidence of this type of cancer is on rise in Ian (Razi *et al*., 2015).

In a study on the epidemiology of children's cancers in Ardabil, the overall incidence of malignancies was reported 95.4 per one million persons and the most common cancers were leukemia (54.2%), CNS tumors and Neuroblastoma, respectively (Fathi *et al*., 2015).

CONCLUSION

It can be cited that the most common cancer in Urmia City and West Azerbaijan Province are breast, esophageal, stomach and lung cancers. The stomach and esophageal cancers are most common in men and breast cancer is most common in women who live in urban areas. In the case of bone marrow cancer, the types of ALL and AML are more common than other types and especially in the age group of younger than 20 years old.

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