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Original Article

Epidemiological Trend and Distribution of Prevalent Cancers in Razavi Khorasan Province during 2005-2010, Iran

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ABSTRACT

Background: Cancer is the main cause of death in the world. Cancer is one of the three main causes of mortality in developed and developing countries such as Iran. In this study, epidemiology of cancer investigated in Razavi Khorasan province during 2005-2010.

Materials and Methods: This retrospective study was conducted on 28,854 patients with cancer in Razavi during 2005-2010. Age-standardized incidence rate (ASR) and frequency of cancer according to gender and age and incidence rates in different age groups were calculated using SPSS software.

Results: In this study, a total of 28,854 patients registered in cancer registry during 2005-2010, 43.9% were female and 56.1% were male. The average age of men and women was 64 ± 18.3 and 55 ± 17.5 years, respectively. ASR for both genders in 2008 were 147.5 and 116.32% per 100,000 cases and in 2009 were 126.68 and 118 per 100,000 cases, respectively, and finally in 2010 rates in men and women were calculated 167.5 and 133, respectively. Khorasan Razavi five most common cancer in both sexes during 2005-2010 included skin, stomach, esophagus, breast, and colorectal cancers, respectively.

Conclusion: Due to the differences observed among the cities in Razavi Khorasan and prevalence of gastrointestinal cancer research in this province, it is required conduct more research to identify risk factors especially about gastrointestinal cancers.

Key words: Cancer, Epidemiologic trend, Razavi Khorasan

INTRODUCTION

Cancer is a group of diseases that arises with the ungovernable growth and abnormal distribution of cells and if this distribution does not control can be fatal.[1] Cancer is one of the deadly agents in the world after cardiovascular diseases, and the second factor of death in the developed countries and the third death in less developed countries.[1,2] Cancer in the coming decades will be one of the most important factors in the world's burden of disease and it is expected to rise the number of new cases of cancer to 15 million patients by 2020 that approximately 60% of the cases will happen in the less developed countries.[3]

Today, cancer is a major public health problem in America and many countries in the world and it is considered as one of the four causes of death in America.[4,5] In developing countries, cancers have an increasing trend that in Iran after cardiovascular diseases and accidents are the third cause

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of mortality.[6] The highest incidence of cancer is related to America with 1.5% during 5 years. 1% of Japanese and 7% of the inhabitants of Eastern Europe had cancer during the last 5 years, and they are now suffering from this disease, and this amount is 0.2% for Iran.[7] In 2001, nearly 7 million cancer deaths (about 12% of total deaths) occurred in the worldwide, which more than 70% of these deaths happened in low and middle-income countries.[8]

In Iran, based on the report of the cancer registry in 2006 and 2007, 56.6% and 57.1% of cancer cases had happened in men and 43.3% and 43.9% of cancer cases had happened in women, respectively.[9,10] Three most common cancer in 2010 in the entire country in both sexes were the skin, breast and stomach cancers, in the Kurdistan province in people over 15 years in both genders were the skin, stomach and esophagus cancers and in the Mazandaran province in men were stomach, skin and esophagus cancers and in women were breast, skin and colon and rectum cancers.[11,12] Some risk factors related to cancer in Iran included the new habits of the Western food style, environmental pollution, tobacco and the aging of the population as well as screening and early identification of the disease.[13] Determining the share and role of each disease in the causes' chain leading to the deaths of the people is the first step in determining the priority of health planners in various communities.[14]

Since the epidemiology of cancer in any area is dependent on the status of race, age, gender, culture, social customs, and nutritional style.[15] And considering that the trend of the incidence of some cancers (lung) in some provinces had increasing trend[15] and in others decreasing trend,[16] and on the other hand, three most common cancer in each province varies together and given that in Razavi Khorasan province epidemiological trends had not studied, the authors decided to investigate the epidemiology and the distribution of common cancers in Razavi Khorasan province during 2005-2010.

MATERIALS AND METHODS

This retrospective study was conducted on 28854 patients with cancer reported by pathology centers including governmental and nongovernmental centers in Razavi during 2005-2010. The aforementioned information registered by data recording software and approved using various methods of quality control by experts such as coverage percent, completeness of information, accuracy of information, and data verification. Inclusion criteria in this study included all native patients in Razavi Khorasan, and exclusion criteria included all non-native patients referred from other provinces to Razavi Khorasan to treat and perform medical care. So after applying inclusion and exclusion criteria, study groups were found, then the age-standardized incidence rate (ASR) for patients groups, sex ratio, five most common cancer in both genders with gender breakdown and different cities in Razavi Khorasan province during 2005-2010 were calculated and determined. The incidence of all cancers demonstrated according to year, gender and age groups during 2005-2010 using Excel software. The data eventually were analyzed using SPSS software version 16 and independent *t*-tests and Chi-square and a significant level of $P = 0.05$ was considered for analysis.

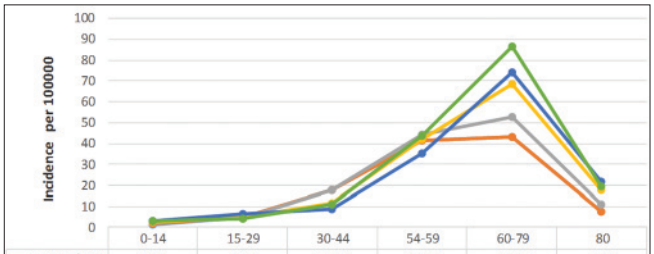
RESULTS

In this study, a total of 28,854 patients registered in cancer registry during 2005-2010, 43.9% were female and 56.1% were male. The average age of men and women were 64 ± 18.3 and 55 ± 17.5 years, respectively. The sex ratio was 1.28, it means for every 100 females there were 128 males, so age of males was significant with $P < 0.001$.

ASR for both genders in 60-79 years group was higher than other age groups and it was higher in males compared to females. The incidence of cancer dropped drastically after 79 years because of fatality of other diseases and aging in patients with cancer (Chart 1). The results of the analysis of the incidence rate of all cancers by year, sex and age groups showed that the incidence of all cancers age-standardized in men was more than women and in the age group 60-79 years was more than other age groups.

The ASR for all cancers by gender also confirms the hypothesis that the incidence of all cancers in men is further than women. The ASR in women among 3 years 2008, 2009 and 2010 were 116.32, 118, and 133, respectively, and in men were 147.54, 126.68, and 167.5, respectively.

Descriptive statistics showed that 98.3% of cancers at the time of diagnosis in terms of behavior (behavior) was in the primary site and malignant type, as well as there was statistical significant relationship between gender and the type of behavior in such a way that the type behavior of malignant primary site in males was significantly more than women ($P = 0.006$), because women seek medical and health care and in the initial stages of diseases treat themselves problem so they can be treated early and prevented advanced stages. On the other hands, men have no tendency to get health services and cancer screening tests related to cancers. Hence, disease will progress in this condition to a malignant disease and metastasis step that will be perhaps one of the reasons why the rate of survival of cancer in males is lower than in females. Five most common cancers in both sexes during 2005-2010 were skin, stomach, esophagus, breast and colorectal cancers, respectively. It is important that the high prevalence rate of esophageal, stomach, skin cancers in both sexes and in fact associated cancers in gastrointestinal tract in this province were more than expected. The distribution of common cancers to distinguish different cities of Khorasan Razavi province during 2005-2010 is shown in Table 1.



	0-14	15-29	30-44	54-59	60-79	80
Female 85	1.63	4.61	17.69	41.52	43.42	7.44
Female 86	1.92	4.61	17.69	41.52	43.42	7.44
Female 87	3.22	4.17	17.86	44.2	52.67	10.91
Male 85	2.47	4.77	11.46	42.27	68.73	17.83
Male 86	2.92	6.24	8.57	34.99	73.95	21.45
Male 87	3.33	4.11	10.82	43.76	86.43	19.61

Chart 1: The incidence of all cancers by year, sex and age groups

By looking at Table 1, it can be found that common cancer in both sexes was as following: In the Mashhad city including skin, breast and esophagus cancers, and in the Neyshabur and Quchan cities including skin, stomach and esophagus cancers, in the Torbateheydariyeh city including skin, esophagus and stomach cancers, in the Torbatejam city including esophagus, stomach, and skin cancers and in the Kashmar city including stomach, skin, and breast cancers.

Thus, it can be said to be an important health problem in discussing the common cancers epidemiology in Razavi Khorasan including skin, stomach, and esophagus cancers that showed urgent actions to prevent and reduce the incidence of cancer prevalence. A significant point in Table 1 above represents that esophageal cancer is considered as an important health issue in the region of Torbatejam, Taybad and Fariman between females that the ASR of esophageal cancer in the city of Torbatejam were 41 per 100,000 cases in females and 29.06 per 100,000 cases in males in 2010 that represents high cancer in this region.

DISCUSSION

The main purpose of this study was to show a view of malignancy in Razavi Khorasan province and their distribution based on epidemiological data and compare it with the available information with other centers in Iran. The result of this study showed that the incidence of cancer in Razavi Khorasan province was increasing especially in men and the age of cancer developing was lower in women.

The findings of this study showed that the incidence of various cancers in men was higher than women (56.1% vs. 43.9%). Sex ratio in the country is reported 1.25 that this ratio was 1.28 in this study. In the study of Nasab *et al*., In Kurdistan, sex ratio was obtained 1.61.[17] The incidence of cancers in Yazd province in men was higher than women (53.5% vs. 46.5%) as well as studies in Lebanon and France also showed that the order of 52.3 and 51% of patients with cancer were men.[18,19] Report of cancer frequency in 2010 showed that 55.5% of cancers happened among males and 44.5% of them among female.[2] The mentioned studies were consistent with our study and as we obtained the frequency of cancer were high in men.

The results showed that the highest prevalence rate was in the 79-60 age group. The average age of cancer developing in men was 64 ± 18.3 years and in women was 55 ± 17.5 years, and the age of the males was significantly more than women ($P < 0.0001$). In the study of Vakili *et al*. showed that the 74-70 age group had the highest incidence of cancer.[19] As well as in the study of Kosha *et al*. in Tabriz city showed that the 74-70 years group had the highest incidence of cancer.[1]

In a similar study in Isfahan province that was carried out by Mokarian *et al*., the mean age of men in the diagnosis of cancer developing was higher than women which confirmed the results of this study.[20] Various studies also showed that cancer incidence can be more with increasing age.[17] Given the high risk of cancer developing in the six decades, it is necessary to reduce the risk factors in the middle ages of life.

Table 1: The distribution of five most common cancers in terms of the cities of Razavi Khorasan province during 2005-2010

City	Sex	Type of cancer				
Mashhad	Female	Breast	Skin	Esophagus	Colorectal	The hematopoietic system
	Male	Skin	Stomach	Bladdr	Prostate	The hematopoietic system
	Both sexes	Skin	Breast	Stomach	Colorectal	The hematopoietic system
Neyshapour	Female	Skin	Breast	Esophagus	The hematopoietic system	Stomach
	Male	Stomach	Skin	Esophagus	The hematopoietic system	Bladder
	Both sexes	Skin	Stomach	Esophagus	The hematopoietic System	Breast
Torbateheydariyeh	Female	Breast	Esophagus	Skin	The hematopoietic system	Stomach
	Male	Stomach	Skin	Esophagus	Prostate	The hematopoietic system
	Both sexes	Skin	Esophagus	Stomach	The hematopoietic system	Breast
Ghochan	Female	Breast	Esophagus	Skin	Stomach	The hematopoietic system
	Male	Stomach	Skin	Esophagus	Prostate	Bladder
	Both sexes	Skin	Stomach	Esophagus	Breast	The hematopoietic system
Torbatejam	Female	Esophagus	Breast	Stomach	Skin	The hematopoietic system
	Male	Stomach	Esophagus	Skin	The hematopoietic system	Bladder
	Both sexes	Esophagus	Stomach	Skin	The hematopoietic system	Breast
Kashmar	Female	Breast	Esophagus	Stomach	Skin	The hematopoietic system
	Male	Stomach	Skin	Prostate	Esophagus	The hematopoietic system
	Both sexes	Stomach	Skin	Breast	Esophagus	The hematopoietic system
Taybad	Female	Esophagus	Breast	Skin	The hematopoietic system	Colorectal
	Male	Stomach	The hematopoietic system	Skin	Esophagus	Colorectal
	Both sexes	Esophagus	Stomach	Skin	The hematopoietic system	Breast
Fariman	Female	Esophagus	Breast	Colorectal	Lip and oral cavity	Skin
	Male	Esophagus	Stomach	Skin	Colorectal	Prostate
	Both sexes	Esophagus	Stomach	Skin	Colorectal	Breast

The standardized incidence rate for men and women in the Razavi Khorasan Province in 2008 were 147.5 and 116.32, respectively, in 2009 were 126.68 and 118, respectively, and finally in 2010 were 167.5 and 133 per 100,000 cases, these findings showed the growth of cancer in this province. In the study conducted in Yazd that was consistent with our study, the incidence rate was obtained 58.2 and 104.7 per 100,000 cases.[18] The results of the various studies including the study conducted in Mazandaran, these amounts were 112.9 and 1.4.59 respectively and in the East Azarbaijan province were 148.96 and 108.1, respectively.[1,12]

Furthermore, a study conducted in France has reported this rate for women and men 209 and 186 per 100,000 cases, respectively.[21] In general, the rate of incidence of cancer in Europe for men and women are 446 and 284 respectively and in the world is 303 and 204 per 100,000 cases.[22] As seen the rate of incidence of cancer in our society is less than western societies however our country is considered as one of the high incidence countries. Differences in incidence of cancer in various geographical areas are probably due to the existence of different risk factors.[23] Diet and nutritional habits, as well as race and ethnic groups, are some risk factors.[23-25] Our study showed that five common cancer of Razavi Khorasan Province during 2005-2010 were skin, stomach, colorectal, breast and esophagus cancers, respectively.

In general, five common cancers in men including colorectal, lung, prostate, stomach, liver and colorectal and in women including breast, lung, cervix and stomach in the world.[12,26-28] The five common cancers in both sexes in our country are skin, breast, colorectal, stomach and bladder, and in Kurdistan province as well as in both sexes are skin, stomach, esophagus and stomach and in East Azerbaijan province are skin, bladder, and esophagus.[1,2,17] In Mazandaran province, three common cancer in women including breast, skin and colorectal respectively and in men in including stomach, esophagus and skin.[12] In the Yazd province also common cancers have reported skin, breast, colorectal, bladder and stomach, respectively.[19] The most common cancers in Portugal in men were lung, prostate, and colorectal, stomach and in women were breast, uterine, gastric and colorectal cancers.[29] The most common cancers in men in Jordan were bladder, prostate, lung colorectal and in women were breast, uterus and colorectal and in Canada in women were cervix, breast and uterine and in men were prostate, bladder, and skin.[18,27]

CONCLUSION

As can be seen in the differences among cancers in Razavi Khorasan province and other provinces and countries, esophageal cancer is the most prevalent cancer in Razavi Khorasan. As well as stomach cancer in both genders was in the high level, and because colorectal cancer was also common cancers, it can be said that the digestive tract cancers were prevalent in Razavi Khorasan province. Then it is essential to identify the risk factors related to digestive track cancer in this province, it maybe originated due to the lifestyle and nutritional habits. It is needed to conduct extensive research by cohort and case–control studies to identify and control risk factors.

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