Short Report

J Babol Univ Med Sci
Vol 19, Issu 4; Apr 2017. P:74-9

Frequency of Cancer Mortality in Babol Ayatollah Rouhani Hospital (2010-2014)

M. Babaei (MD)[1], M. Sadeghi Haddad Zavareh (MD)[2], S.E. Samaei(MSc)[3], H. Jafarpoor(PhD)*[4]

1.Mobility Impairment Research Center, Health Research Center, Babol University of Medical Sciences, Babol, I.R.Iran
2.Infectious Diseases and Tropical Medicine Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran
3.Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran
4.Cancer Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran

J Babol Univ Med Sci; 19(4); Apr 2017; PP: 74-9
Received: Dec 17th 2016, Revised: Jan 25th 2017, Accepted: Apr 4th 2017.

ABSTRACT

BACKGROUND AND OBJECTIVE: Cancer is one of the main causes of death in human societies. The epidemiological research and cancer control policy in developed countries is dependent on the record of various types of cancer and of mortality information on cancer. The aim of this study was to determine the frequency of mortality from cancer in Ayatollah Rouhani Hospital of Babol.

METHODS: This cross-sectional study was performed on all patients who died of cancer in Ayatollah Rouhani Hospital during 5 years. The available information in medical records was collected using researcher-made form (containing demographic characteristics and cause of death).

FINDINGS: The most of died patients were over 60 years (49.21%). Gastrointestinal (38.17%) and blood and lymph cancers (31.54%) had higher prevalence than other cancers. Frequency of mortality was different in studied gender and age group.

CONCLUSION: The incidence of cancer mortality has a growing trend. Since the gastrointestinal cancer has been reported as the main cause of death, routinely identifying the factors related to the prevention of cancer in people at risk and screening tests for early detection of gastrointestinal cancers are necessary.

KEY WORDS: *Mortality, Patient, Hospital, Cancer.*

Please cite this article as follows:

Babaei M, Sadeghi Haddad Zavareh M, Samaei SE, Jafarpoor H. Frequency of Canser Mortality in Babol Ayatollah Rouhani Hospital (2010-2014). J Babol Univ Med Sci. 2017;19(4):74-9.

* **Corresponding author: H.A. Jafarpoor(MSc)**
Address: Clinical Research Development Center, Rouhani Hospital, Babol University of Medical Sciences, Babol, I.R.Iran
Tel: +98 11 32238294
E-mail: jafarpoor_hasan@sbmu.ac.ir

[DOR: 20.1001.1.15614107.1396.19.4.10.7]
[DOI: 10.22088/jbums.19.4.74]

Introduction

Nowadays, cancer is considered as one of the major causes of mortality in human societies (1). Based on the latest reports by National Center for Health Statistics, 1,658,370 new cases of cancer were reported in United States in 2015 and 589,430 people died from cancer in this year (2). After cardiovascular diseases and accidents, cancer mortality is the most important cause of death in Iran. Cancer mortality constitutes a large share of mortality in Iran (14% of all cases of death); every day, 98 people die because of cancer in Iran (3, 4).

The severe complications and consequences of cancer such as unbearable pains, physical strength and direct and indirect costs of this diseases necessitates paying more attention to cancer and acquiring more knowledge about this disease (5). Since the epidemiology of the incidence of cancer in each region depends on various factors, it is necessary to analyze the incidence pattern in various regions (6).

According to an epidemiologic study about different types of cancer in Mazandaran Province, the most common type of cancer among women was reported to be breast cancer (23.38%) and the most common type of cancer among men was gastric cancer (41.52%) (7). Moreover, results of a ten–year survey among patients with cancer in one of the hospitals in the north of Iran (Babolsar) indicated that breast cancer had the highest frequency among women and esophageal cancer had the highest frequency among men (8).

The epidemiologic studies (including mortality studies) led to obtaining the pattern of age, gender, race, economy and culture of patients in a region and attracted the attentions toward the target groups, so we could use accurate planning for screening, early diagnosis and disease treatment in order to reduce the disabilities and the imposed economic costs (9). Analyzing the data obtained from records of cancer mortality of patients who referred to the hospitals in a geographic region and studying the main cause of death led to determination of cancer patterns in the population, monitoring the course of the disease and treatment, planning and evaluation of cancer control programs, prioritizing resource allocation for cancer and doing clinical and epidemiological researches for cancer.

Considering these subjects and the significant increase in the risk of cancer and considering that investigating the cause of death in each region can be the base for improving healthcare conditions and reducing the risk factors. Therefore, the present study was conducted to analyze the frequency of cancer mortality among patients hospitalized in Ayatollah Rouhani Hospital (Babol, Iran).

Methods

This cross-sectional study was conducted among all patients who died from cancer in Ayatollah Rouhani Hospital (Babol, Iran) within a five–year period (2010-2014).

The study was conducted based on the patients' recorded data in Medical Documents Unit, patients' records and death certificate. The data recorded in patient's records, patients' registration book and the hospital mortality committee's list were collected and in cases where the data in these sources contradicted, the patient was excluded from the study. Finally, the data related to 634 patients who died from cancer in different sections of this hospital were collected and analyzed.

After obtaining the required permissions, the data related to each patient who died from cancer was entered into a pre-designed form including information about year of death, gender, residence condition, the section in which they died and the cause of death (type of cancer).

Furthermore, the type of cancer was categorized into 5 groups based on The International Classification of Diseases: 1. Cancer of the blood and lymph system (blood and bone marrow), 2. Digestive system cancers (including pancreatic, colon, stomach, rectum, esophagus, larynx, laringe, liver), 3. Respiratory system cancers (including: trachea, anus, and lung), 4. Cancers of the reproductive system and urinary tract in men (including prostate and kidney), 5. Female genital and urogenital cancers (including uterus and ovaries and breast).

After collecting the required data, descriptive statistics were used and chi-square test was used to investigate the relationship between demographic variables and the cause of cancer mortality and $p<0.05$ was considered significant.

Results

Based on the results of this study, 60.41% (383 cases) of all mortality (634 cases) were related to men (table 1). The lowest and highest prevalence of cancer

[DOR: 20.1001.1.15614107.1396.19.4.10.7]
[DOI: 10.22088/jbums.19.4.74]

belonged to men's cancers of the reproductive system and urinary tract (4.10%) and digestive system cancers (38.17%), respectively (table 2).

Distribution of the gender – specific prevalence of cancer showed that the prevalence of breast cancer (61 cases) was the most prevalent gender – specific cancer among the patients who died from cancer (table 3). There was a significant relationship between the types of cancer (except for gender – specific cancer) and gender ($p<0.05$) (table 4). Furthermore, there was a significant relationship between mortality from different types of cancer and various age groups and the section in which the patients died ($p<0.05$) (table 4).

Table 1. Demographic characteristics of patients died from cancer (2010-2014)

Variable		Gender		Age(years)			Total (%)
		Male	Female	<45	45–60	60<	
Year of death	2010	54(8.5)	28(4.4)	17(2.7)	29(4.6)	36(5.7)	82(12.9)
	2011	50(7.9)	33(5.2)	22(3.5)	25(3.9)	36(5.7)	83(13.1)
	2012	90(14.2)	65(10.3)	26(4.1)	45(7.1)	84(13.2)	155(24.4)
	2013	92(14.5)	67(10.6)	39(6.2)	44(6.9)	76(12.0)	159(25.1)
	2014	97(15.3)	58(9.1)	28(4.4)	47(7.4)	80(12.6)	155(24.1)
	Total (%)	383(60.4)	251(39.6)	132(20.8)	190(30.0)	312(49.2)	634(100)
Residence condition	Native	233(36.8)	166(26.2)	84(13.4)	118(18.6)	196(30.9)	399(00.00)
	None-native	150(23.7)	85(13.4)	47(7.4)	72(11.4)	116(18.3)	235(00.00)
	Total (%)	383(60.4)	251(39.6)	132(20.8)	190(30.0)	312(49.2)	634 (100)
Hospitalization and death	Emergency section	107(16.9)	82(12.9)	31(4.9)	68(10.7)	90(14.2)	189(29.8)
	Internal sections	180(28.4)	121(19.1)	59(9.3)	89(14.0)	153(24.4)	301(47.5)
	Special sections	96(15.1)	48(7.6)	42(6.6)	33(5.2)	69(10.9)	144(22.7)
	Total (%)	383(60.4)	251(39.6)	132(20.8)	190(30.0)	312(49.2)	634(100)

Table 2. The frequency of mortality from cancer in patients who died from cancer (2010-2014)

The studies cancers	Gender		Total (%)
	Male	Female	
Blood and lymph system	124(19.6)	76(12.00)	200(31.5)
Digestive system	172(27.1)	70(11.00)	242(38.2)
Respiratory system	61(9.6)	16(2.5)	77(12.1)
Male reproductive system and urinary tract	26(4.1)	0(00.00)	26(4.1)
Female reproductive system and urinary tract	0(00.00)	89(14.00)	89(14.00)
Total (%)	383(60.4)	251(39.6)	634(100.00)

Table 3. The relationship between cancer and gender in patients who died from cancer (2010-2014)

Variable		The studies cancers (causes of mortality)			Total (%)
		Blood and lymph system	Digestive system	Respiratory system	
Gender	Male	124(23.9)	172(33.1)	61(11.8)	357(68.8)
	Female	76(14.6)	70(13.5)	16(3.1)	162(31.2)
Total (%)		200(38.5)	242(46.6)	77(14.8)	519(100)

p=0.012

[DOR: 20.1001.1.15614107.1396.19.4.10.7]
[DOI: 10.22088/jbums.19.4.74]

Table 4. The relationship between cancer and age group and residence condition in patients who died from cancer (2010-2014)

The studies cancers (causes of mortality) / Variable		Blood and lymph system	Digestive system	Respiratory system	Male reproductive system and urinary tract	Female reproductive system and urinary tract	Total (%)	p-value
Age(years)	<45	60(9.5)	31(4.9)	14(2.2)	8(1.3)	19(3.0)	132(20.8)	<0.001
	45–60	46(7.3)	72(11.4)	24(3.8)	4(0.6)	44(6.9)	190(30.0)	
	60<	94(14.8)	139(21.9)	39(6.2)	14(2.2)	26(4.1)	312(49.2)	
Total (%)		200(31.5)	242(38.2)	77(12.1)	26(4.1)	89(14.0)	634(100.0)	
residence condition	Native	118(18.6)	153(24.1)	43(6.8)	20(3.2)	65(10.3)	399(62.9)	0.059
	None-native	82(12.9)	89(14.0)	34(5.4)	6(0.9)	24(3.8)	235(37.1)	
Total (%)		200(31.5)	242(38.2)	77(12.1)	26(4.1)	89(14.00)	634(100.0)	

Discussion

Based on the results of this study, digestive system cancer (including gastric cancer) was the most important cause of mortality in the target period. Considering the high prevalence of mortality from digestive system cancer (esophagus, stomach, colon and rectum) in recent years in Iran, special attention has been paid to this category of cancers (10). According to the results of investigating the cancer records in Caspian region (north of Iran), the Esophageal cancer was introduced as the most common type of cancer in the area (11).

Moreover, in an epidemiologic study by Baeradeh et al. on the common cancers of Razavi Khorasan Province, digestive system cancers had considerable prevalence (9). Because of its special anatomic condition, digestive system cancers reveal their symptoms late in terms of volume and lymph nodes around them, and quickly encompass the near and far organs. Due to these two characteristics of this type of cancer, patients refer to hospitals when their disease is highly advanced and the cancer is often incurable at this stage because of the wide lymphatic network (12). In the present study, one of the most important cause of death from cancer in female patients was breast cancer. The crude rate of breast cancer incidence was estimated to be 22.4 per 110,000 women in Iran and the available data indicate that this disease has an increasing trend in Iran. Breast cancer had the first rank among all types of cancer among women in recent years in Iran (13), which is consistent with the results of the present study.

Considering the importance of the subject, we need specified planning for screening Iranian women, particularly women in younger age groups and those with facility history of breast cancer. In the present study, the frequency of mortality from cancer was reported to be more among men. Moreover, studies in Lebanon and France demonstrated that 52.3% and 51% of patients with cancer are men, respectively (14). In addition, according to the results, there is a significant relationship between different types of cancer (except for gender – specific cancers) and the variable of gender and these results are consistent with the epidemiologic study in Razavi Khorasan Province (9). Cook et al. also reported gender – specific differences in their study in United States. They concluded that gender – specific differences play a significant role in the incidence and treatment of cancers (15).

This may be due to difference in their occupation, since men are more faced with outside environment and more exposed to carcinogenic agents. Results of the study demonstrated that mortality from cancer increases as people age and increases considerably from the sixth decade of life. In this regard, in a study by Dortage et al. on the mortality from cancer in cities of Fars province, reported the mean age of all cases of death from lethal cancer to be 62 years old (16), which is consistent with the results of the present study. Considering the high risk of cancer incidence in the elderly (above 60 years old), preventive plans and measures during mid – life are necessary to reduce the risk factors in these people. One of the limitations of the present study was lack of providing enough information about other risk factors of mortality from cancer including: nutritional habits, patients' occupation, history and time of exposure to carcinogenic agents, family history and other factors.

It is suggested that the plan for recording cancer be conducted with more accuracy and comprehensiveness in hospitals of Babol. The present study revealed an increasing trend in mortality from cancer in the target

[DOR: 20.1001.1.15614107.1396.19.4.10.7]
[DOI: 10.22088/jbums.19.4.74]

period. The prevalence of digestive system cancer was faced with considerable growth compared with other types of cancer and this category of cancer had the highest frequency of mortality from cancer. Therefore, identifying the effective factors, improving people's knowledge using training programs for preventing this type of cancer in people at risk and running routine screening tests for early diagnosis of digestive system is necessary.

Acknowledgments

Hereby, we express our deepest sense of gratitude and indebtedness to Deputy of Research and Technology of Babol University of Medical Sciences for their financial support and all the personnel of Clinical Research Development Units, Medical documents and dear members of Mortality Committee of Ayatollah Rouhani Hospital in Babol.

[DOR: 20.1001.1.15614107.1396.19.4.10.7]
[DOI: 10.22088/jbums.19.4.74]

References

1.Cannon G, Gupta P, Gomes F, Kerner J, Parra W. Prevention of cancer and non-communicable diseases. Asian Pac J Cancer Prevention. 2012;13(4):3-11.

2.Siegel R, Miller K, Jemal A. Cancer statistics, 2015. CA Cancer J Clin. 2015;65(1):5-29.

3.Rafiemanesh H, Rajaei-Behbahani N, Khani Y, Hosseini S. Incidence trend and epidemiology of common cancers in the center of Iran. Glob J Health Sci. 2016;8(3):146.

4.Taheri N, Fazel A, Mahmoodzadeh H, Omranpour R, Roshandel G, Gharahjeh S, et al. Epidemiology of female reproductive cancers in Iran: Results of the gholestan population-based cancer registry. Asian Pac J Cancer Prevent. 2014;15(20):8779-82.

5.Vafajo D, Abedini Z, Ahmari T ,Mohamadgholizade L. Epidemiology of cancer in Qom, Iran 2008-2011. Payesh. 2014;13(2):155-63.

6.Alberg A, Brock M, Samet J. Epidemiology of lung cancer: looking to the future. J Clin Oncol. 2005;23(14):3175-85.

7.Nejad F, Daryasari RR ,Ghafari F. Epidemiology of cancer in Mazandaran province 2006. J Mazand Univ Med Sci. 2009;19(72):61-5.

8.Tayebi M, Shabestani MA, Moslemi D. A 10 year survey of cancer in patients who referred to shahid rajai radiotherapy center in north of iran (2000-2009) J Babol Univ Med Sci. 2012;14(16):97-101.[In Persian].

9.Baeradeh N, Mirzae M, Zamani M. Epidemiology OF Prevalent Cancers In Khorasan Razavi province In 2008. medical journal of mashhad university of medical sciences. 2015;57(8):926-31.

10.Hasanzadeh J, Hosseini Nezhad Z, Molavi Vardanjani H, Farahmand M. Gender differences in esophagus, stomach, colon and rectum cancers in fars, Iran, during 2009-2010: an epidemiological population based study. J Rafsanjan Univ Med Sci. 2013;12(5):333–42 [In Persian]..

11.Derakhshan M, Yazdanbod A, Sadjadi A, Shokoohi B, McColl K, Malekzadeh R. High incidence of adenocarcinoma arising from the right side of the gastric cardia in NW Iran. Gut. 2004;53(9):1262-6.

12.Almasi A, Shamsi M, Eshrati B, Farzam R, Alimoradi K, Rahmati L. The epidemiology of gastrointestinal cancers (Stomach, esophageal, colorectal) In Markazi province during 2005-2010. J Neyshabur Univ Med Sci. 2014;2(2):22-7.[In Persian].

13.Asgarian F, Mirzaei M, Asgarian S, Jazayeri M .Epidemiology of Breast Cancer and the Age Distribution of Patients over a Period of Ten Years. Iran Quar J Breast Dis. 2016;9(1):31-6. [In Persian].

14.Shamseddine A, Sibai A-M, Gehchan N, Rahal B, El-Saghir N, Ghosn M, et al. Cancer incidence in postwar Lebanon: findings from the first national population-based registry, 1998. Ann Epidemiol. 2004;14(9):663-8.

15.Cook M, Dawsey S, Freedman N, Inskip P, Wichner S, Quraishi S, et al. Sex disparities in cancer incidence by period and age .Cancer Epidemiol Biomarke Prev. 2009;18(4):1174-82.

16.Dortag E, Bahrampour A, Haghdost A, Zendedel K, Jaberipour M, Marzeban M. Completeness of fars province deaths registry on cancer death using capture recaptures method. J North Khorasan Univ Med Sci. 2012;3(5):33-43.[In Persian].

[DOR: 20.1001.1.15614107.1396.19.4.10.7]

[DOI: 10.22088/jbums.19.4.74]