

RESEARCH COMMUNICATION

Decreased Trend of Pancreatic Cancer Mortality in Iran

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Abstract

Background: Pancreatic cancer is a fatal cancer with a 5-year survival of only about 4% for all tumors. There are only published data on mortality from pancreas cancer and its epidemiology in Iran. The aim of this study was to present the mortality trends from pancreatic cancer for the Iranian population, using national death statistics in order to provide update information for its burden. **Methods:** National Death Statistics reported by the Ministry of Health from 1999 to 2004 stratified by age group, sex, and cause of death were included in the analysis to generate pancreas cancer (ICD-10; 25) annual mortality rates/100,000, overall, by sex and by age group (<15, 15-49 and ≥50 years of age) and age-standardized rates (ASRs). **Results:** The age standardized mortality rate of pancreatic cancer decreased slightly during the years under study. Values were higher for males and increased with age. **Conclusion:** This study provides a projection of burden of death due to pancreatic cancer for Iran, indicating that the trend of its mortality is decreasing and may be leveling off in recent years.

Keywords: Pancreatic cancer - mortality - trend analysis - Iran

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Introduction

The gastrointestinal cancers are the most frequent cancer among Iranian men and second to breast cancer among women (Mosavi-Jarrahi and Mohagheghi., 2006; Pourhoseingholi et al., 2009a). Pancreatic cancer is a rapidly fatal cancer; it has the poorest survival rate of any major malignancy, with only 5-year survival of about 4% for all tumors (American Cancer Society, 1996; Ries et al., 2002) and only with 25-30% five-year survival after surgery (Ryu et al., 2010). The pancreas is anatomically segmented into head, body and tail, and invasive carcinoma may arise from any part. It is difficult to diagnose at early stage, unresectable at the time of diagnosis (Warshaw and Fernandez-del Castillo, 1992), and there are currently no effective means of screening, early detection, or treatment (Coughlin, 2000).

The incidence of pancreatic cancer is very high in the world (Pisani et al., 1997) and worldwide, this cancer accounts for about 220,000 deaths annually and is the sixth major cause of cancer-related mortality due to its low (Lowenfels and Maisonneuve., 2005; Parkin et al., 2005) with the mortality approaching the incidence (Karanjawala et al., 2008). Among industrialized countries, pancreatic cancer is the fifth leading cause of death from cancer (Schwartz and Reis, 2000). In Iran, pancreas cancer is not rank in the top 10 for newly diagnosed cases (Iranian Annual of National Cancer Registration Report, 2008).

There is little published data on the mortality of pancreas cancer and its epidemiology and adequate

description of the mortality rates and trends may provide an estimation of pancreas cancer burden in future.

The aim of this study was to present the mortality trends from pancreatic cancer for Iranian population, using national death statistic in order to provide update information for this cancer.

Materials and Methods

We employed national death statistics to provide a trend analysis of pancreatic cancer. The National Organization for Civil Registration (NOCR) and the Ministry of Health and Medical Education (MOH&ME) established death registration systems in Iran. Between 1966 and 1995, mortality data based on cemetery records were collected in a sample of 24 cities. In 1995, the system was redesigned to cover the entire country (Khosravi et al., 2007).

National Death Statistics reported and published by the Ministry of Health and Medical Education (MOH&ME) from 1999 to 2004 (Naghavi, 2000; 2001; 2003; 2004; 2005; 2007) stratified by age group, sex, and cause of death (coded according to the 9th revision of the International Classification of Diseases (ICD-10)) are included in this analysis. Pancreas cancer (ICD-10; 25) were expressed as the annual mortality rates/100,000, overall, by sex and by age group (<15, 15-49 and ≥50 years of age) and age standardized rate (ASR). The populations of Iran in 1999-2004 were estimated, using the censuses conducted by Statistics Centre of Iran and number of covered provinces

Table 1. Age Specific Rate for Pancreas Cancer Mortality Stratified by Sex

	Male	Female	Total
1999	1.54	0.77	1.16
2000	1.25	0.70	1.03
2001	1.22	0.86	1.05
2002	1.13	0.64	0.89
2003	1.10	0.70	0.90
2004	0.89	0.57	0.73

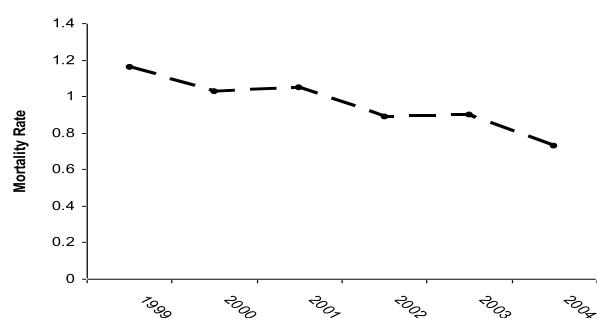
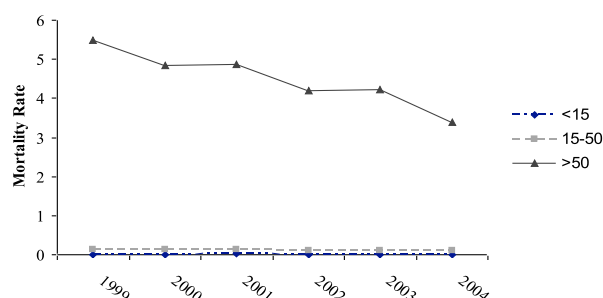
Table 2. Age Standardized Rate for Pancreas Cancer Mortality Stratified by Sex and Age

	<15 Years		15-49 Years		>=50 Years	
	Male	Female	Male	Female	Male	Female
1999	0.00	0.00	0.27	0.00	7.02	3.86
2000	0.00	0.00	0.21	0.05	5.76	3.84
2001	0.02	0.02	0.20	0.08	5.58	4.12
2002	0.00	0.00	0.19	0.00	5.19	3.20
2003	0.00	0.00	0.20	0.05	5.01	3.39
2004	0.00	0.02	0.13	0.10	4.15	2.59

in death registration data base.

Results

All death records due to pancreas cancer from 1999

**Figure 1. Trends of Pancreas Cancer Mortality During the Period 1995-2004. (Age Standardized Rate per 100,000)****Figure 2. Trends of Pancreas Cancer Mortality During the Period 1995-2004 by Sex Groups. (Age Standardized Rate per 100,000)****Figure 3. Age Specific Rate (per 100,000) for Pancreas Cancer Mortality During the Period 1995-2004**

to 2004 are included in this study. The age standardized mortality rate showed that the mortality slightly decreased during the years under study from 1.16 to 0.73 per 100,000 (Table 1 and Figure 1). This declining was more for men than women and it seems that pancreatic cancer mortality trend for women was leveled off with slight decreasing from 0.77 in 1999 to 0.57 in 2004 per 100,000 (Table 1 and Figure 2). Moreover pancreatic cancer mortality was higher for male (Table 1 and Figure 2) and older age (Table 2 and Figure 3). Also decreasing trend for older age in male was higher than female's (Table 2). Age specific rate indicated that the mortality increased as age increased (Table 2 and Figure 3).

A limitation of this study is underestimating of mortality for cancers in Iran due to misclassification (Pourhoseingholi et al., 2009b).

Discussion

This study indicated that the trend of pancreatic cancer mortality was slightly decreased in the years under study. This declining trend is in contrast to western countries such as Germany, US, France and Spain which have reported an increasing trend according to WHO Mortality Database (Katanoda and Yako-Suketomo, 2010).

Pancreatic cancer is one of the diseases that are correlated with industrialization and the statistics of pancreatic cancer mortality worldwide in 1990 suggested that majority deaths occurred in developed countries (Pisani et al., 1999) and the ASR rates of pancreatic cancer in developed countries such as the US, the UK, Australia and Japan, ranged from 6 to 8 per 100 000 in males, and 4 to 6 in females (Worldwide cancer mortality statistics, 2006). But in these countries, the mortality rate of pancreatic cancer, both in males and females, have leveled off after increasing in recent decades or going to be leveled off (Katanoda and Yako-Suketomo, 2010).

In some Asian countries, such as South Korea and Singapore, the ASR of pancreatic cancer are also high however, not reaching the peak yet (Worldwide cancer mortality statistics, 2006) and in China the death rate due to pancreatic cancer was rising and the peak mortality might arrive in future (Wang et al., 2003).

In our study, the mortality of pancreatic cancer was related to age and the majority of deaths occurred in the age group of 50 years or older; which is similar to other studies (Oomi and Amano, 1998; Lillemoe et al., 2000; Wang et al., 2003). Also, as similar as other studies, we found the gender difference between male and female and the mortality from pancreatic cancer in males was higher than that in females (Worldwide cancer mortality statistics, 2006; Oomi and Amano, 1998; Wang et al., 2003).

Pancreatic cancer is a fatal cancer with low survival. Iranian mortality data suggested that the trend of this fatal cancer is still low and may be leveled off in recent years. The burden of disease was higher for male and older age.

Routine pancreatic cancer screening is not recommended in asymptomatic persons (AGA, 1999). However, subgroups at increased risk (individuals with inherited genetic syndromes and those from familial pancreatic cancer kindreds) might benefit from screening

(Jaffee et al., 2002; Buxbaum and Eloubeidi, 2010). So conducting a surveillance program for subgroups at increased risk would be more decrease pancreatic cancer in future.

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