
RESEARCH COMMUNICATION

Mortality of Oral Cavity Cancer in Iran

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Abstract

Background: Oral cavity cancer is the eighth most frequent cancer among men in the world. Its incidence varies widely geographically and two-thirds of the incident cases are diagnosed in developing countries. The aim of this study was to present the mortality trends from this cancer for Iranian population during a period of almost a decade, in order to provide update information regarding time trends for this cancer. **Methods:** We analyzed National death Statistics reported by the Iranian Ministry of Health and Medical Education from 1995 to 2004, stratified by age group, sex, and cause of death. Oral cavity cancer [ICD-10; C00-08] was assessed for annual mortality rates/100,000, overall, by sex and by age group (<15, 15-49 and ≥50 years of age) and age standardized rates (ASR) were calculated. **Results:** The age standardized mortality rate of oral cavity cancer increased dramatically during these years from 0.09 per 100,000 in 1995 to 0.59 per 100,000 in 2002. However, a sharp decrease was observed from 2002 to 2004. Moreover the mortality of oral cavity cancer was higher for males except from 2000-2002 during which the rate of female's death was close to male's. Age specific rates for oral cavity cancer indicated higher mortality rate for older age. **Conclusion:** In conclusion, this study provides comprehensive projection for burden of death due to oral cavity cancer, indicating that the trend of its mortality was increased in recent decade and then would be leveled off. While the burden of oral cavity cancer in Iran is lower than other Asian countries, further studies are required to establish risk factors or modifiers for this cancer in Iranian population in order to decrease its incidence and mortality.

Key words: Oral cavity cancer - mortality - burden - Iran

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Introduction

The gastrointestinal (GI) cancers are the most frequent cancer among Iranian males and second to breast cancer among females (Mosavi-Jarrahi and Mohagheghi., 2006; Pourhoseingholi et al., 2009a; 2009b) and the burden of these cancers were increased recently (Pourhoseingholi et al., 2010a; 2010b; 2011). Oral cavity cancer is the eighth most frequent cancer among men in the world. Its incidence varies widely throughout the world and two-thirds of the incident cases are diagnosed in developing countries (Ferlay et al., 2004). In developed countries, the incidence is relatively small, making up less than 5% of all malignancies (Parkin et al., 1988). It is estimated that 34,360 new cases of pharyngeal and oral cavity cancer would be diagnosed in 2007 in the United States and that 7550 people will die from these cancers (Jemal et al., 2007).

The occurrence of oral cavity cancer is high in developing countries rather than developed countries.

In developing countries, oral cavity cancer is estimated to be the third most common malignancy after cancer of the cervix and stomach (Wong et al., 2006). Oral cavity cancer is most frequent in India, where it accounts for as much as 15–20% of all cancers (Levine and Seidman., 1993). In Taiwan, oral cancer has been one of the leading causes of death from cancer since 1991 (Liu et al., 2006). Neoplasms at the lip, oral cavity and oropharynx represent about 1.5% of the total neoplasms in Japan (MHLW., 2005).

The incidence rates for these cancers are higher among men (U.S. Cancer Statistics Working Group., 2007) and the most frequently risk factors for cancers of the pharynx and oral cavity are tobacco and alcohol use (Blot et al., 1988; Day et al., 1993). Also poor oral health (Guha., 2007) and human papilloma virus infection (Gillison., 2007) were reported as the risk factors.

Though, the information on mortality of oral cavity cancer has been studied in some developed countries, data from developing countries like Iran is still scanty.

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The aim of this study was to present the mortality trends from this cancer for Iranian population during a period of almost a decade, in order to provide update information regarding time trends for this cancer.

Materials and Methods

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., 2007). National death Statistic Reported by the MOH&ME from 1995 to 2000 (registered death statistics for Iranian population at the Information Technology and Statistic Management Center, MOH&ME) and from 2001 to 2004 (published by MOH&ME) (Naghavi., 2002; Naghavi., 2003; Naghavi., 2004) stratified by age group, sex, and cause of death are included in this analysis. Oral cavity cancer [ICD-10; C00-08] 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 1995-2004 were estimated, using the census from 1996 conducted by Statistics Centre of Iran and its estimation according to population growth rate for years before and after national census.

Results

All death records due to oral cavity cancer from 1995 to 2004 are included in this study. The age standardized mortality rate of oral cavity cancer increased dramatically during these years from 0.09 per 100,000 in 1995 to 0.59 per 100,000 in 2002 (Figure 1 and Table 1) however a sharp decreasing was observed from 2002 to 2004. Moreover the mortality of oral cavity cancer was higher for male except from 2000-2002 in which, the rate of female's death was close to male's or ranked it (Table1 and Figure 2). Besides, age specific rate for oral cavity cancer indicated higher

Table 1. Age Specific Rates (per 100,000) for Oral Cavity Cancer Mortality Stratified by Sex Group

Year	<15 Years		15-49 Years		≥50 Years		Total ASR		
	M	F	M	F	M	F	M	F	All
1995	0.00	0.03	0.01	0.01	0.47	0.28	0.11	0.07	0.09
1996	0.03	0.03	0.09	0.08	0.93	0.79	0.26	0.22	0.24
1997	0.02	0.03	0.11	0.04	0.89	0.56	0.26	0.15	0.20
1998	0.03	0.02	0.07	0.04	1.24	1.08	0.32	0.26	0.29
1999	0.01	0.02	0.07	0.07	1.42	0.93	0.35	0.24	0.30
2000	0.02	0.03	0.10	0.09	1.15	1.35	0.31	0.35	0.33
2001	0.02	0.03	0.04	0.06	1.03	1.17	0.25	0.29	0.27
2002	0.02	0.02	0.10	0.12	2.50	2.29	0.60	0.57	0.59
2003	0.09	0.00	0.20	0.10	2.50	1.50	0.67	0.38	0.53
2004	0.00	0.01	0.06	0.05	1.44	1.00	0.35	0.25	0.30

ASR, age standardized rate, M, male; F, female

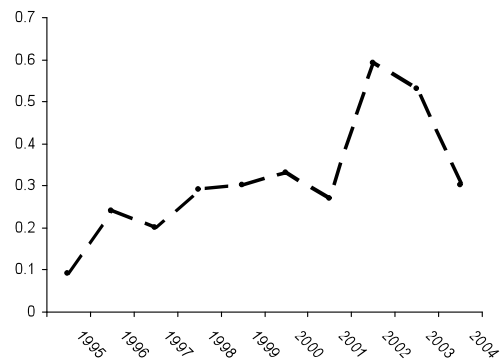


Figure 1. Trends of Oral Cavity Cancer Mortality During the Period 1995-2004 (Age Standardized Rate per 100,000)

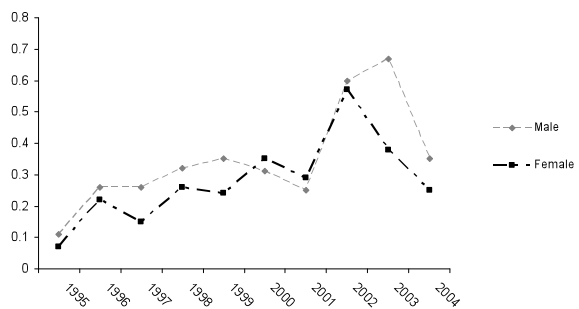


Figure 2. Trends of Oral Cavity Cancer Mortality During the Period 1999-2004 by Sex Group (Age Standardized Rate per 100,000)

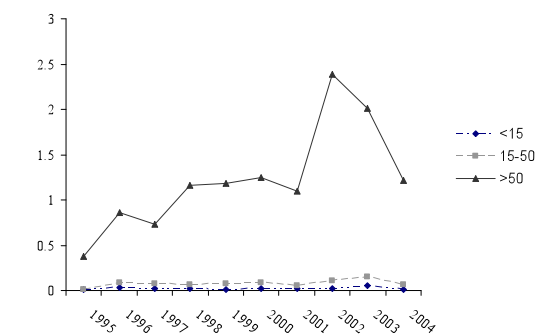


Figure 3. Age-specific Rate (per 100,000) of Oral Cavity Cancer Mortality During the Period 1995-2004

mortality rate for older age (Table 1 and Figure 3).

Discussion

This study provides comprehensive projection for burden of death due to oral cavity cancer, based on the Iranian death registry system, indicating that the trend of its mortality was dramatically increased at the beginning of the 21 century and then stabilized after this increasing. Mortality data, extracted from the World Health Organization (WHO) database showed that for both males and females, age-standardized rates mortality of oral cavity cancer in China (Hong Kong) were high and have decreased apparently over the period, whereas the mortality rates in the USA and

Australia showed a decreasing trend throughout the observation period (1990–2006) (Yako-Suketomo and Matsuda., 2010).

Mortality rates in the USA, Australia and Asian countries except China (Hong Kong) were at the same level (Yako-Suketomo and Matsuda., 2010). According to the statistical data from Taiwan, the annual death toll for oral cancer in males has been increasing at a surprising rate (Liu et al., 2006). Also the age-standardized mortality rate in India is 7.2 per 100 000, respectively (world mortality: 2.9 per 100 000) (Ferlay et al., 2004).

Our study revealed that although there was an increasing trend for mortality of oral cavity cancer, the rate of its death is still lower than other Asian countries and never achieved more than 0.6 per 100 000. Epidemiological studies have verified the habitual use of tobacco in any form and alcohol as significant factors for oral cavity cancer (Schmid and Popham., 1981; Kissin et al., 1993). Besides, chewing betel nut increases the risk of oral cavity cancer in eastern Asia (Lin et al., 2005). Alcohol consumption is low in Iranian people and Betel nut chewing is a habit in eastern Asian countries not in Middle East. So these may be the reasons why the rate of oral cavity cancer death is lower than other Asian countries.

According to our study, the mortality of oral cavity cancer was higher for male in some years under study (except from 2000-2002) and also was higher for older age. WHO mortality data-base indicated that Lip, oral cavity and pharynx cancer mortality rates for males were from 3 to 10 times higher than for females (WHO mortality). Oral cavity cancer has traditionally been most common among the elderly (Rich and Radden., 1984). However, In recent years an upward trend has been observed in the number of oral cavity cancer cases among females in the United States (Constantinides et al., 1992) and among the younger age groups in Europe, perhaps reflecting the increasing number of women smokers (Boyle et al., 1993).

Though the study revealed interesting facts about mortality of oral cavity cancer during study decade in Iran, the result of this study must be interpreted after the reader considers to the following issues in this paper. First, the coverage and quality of death registration has increased in our country and observed increased mortality rates for oral cavity cancer may be probably due to better national registration (Naghavi., 2004).

In conclusion, this study provides comprehensive projection for burden of death due to oral cavity cancer based on the death registry system for Iran, indicating that the trend of its mortality was increased in recent decade and then would be leveled off. However the burden of oral cavity cancer in Iran is lower than other Asian countries, further studies are required to establish risk factors or modifiers for this cancer in Iranian population in order to decrease its incidence and mortality.

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