

Original Article

Cancer Incidence and Mortality in China, 2007

Wan-qing Chen*, Hong-mei Zeng, Rong-shou Zheng, Si-wei Zhang, Jie He

National Office for Cancer Prevention and Control/National Central Cancer Registry, Cancer Institute, Chinese Academy of Medical Sciences, Beijing 100021, China

DOI: 10.1007/s11670-012-0001-6

© Chinese Anti-Cancer Association and Springer-Verlag Berlin Heidelberg 2012

ABSTRACT

Objective: Cancer incidence and mortality data collected from population-based cancer registries were analyzed to present the overall cancer statistics in Chinese registration areas by age, sex and geographic area in 2007.

Methods: In 2010, 48 cancer registries reported cancer incidence and mortality data of 2007 to National Central Cancer Registry of China. Of them, 38 registries' data met the national criteria. Incidence and mortality were calculated by cancer sites, age, gender, and area. Age-standardized rates were described by China and World population.

Results: The crude incidence rate for all cancers was 276.16/100,000 (305.22/100,000 for male and 246.46/100,000 for female; 284.71/100,000 in urban and 251.07/100,000 in rural). Age-standardized incidence rates by China and World population were 145.39/100,000 and 189.46/100,000 respectively. The crude mortality rate for all cancers was 177.09/100,000 (219.15/100,000 for male and 134.10/100,000 for female; 173.55/100,000 in urban and 187.49/100,000 in rural). Age-standardized mortality rates by China and World population were 86.06/100,000 and 116.46/100,000, respectively. The top 10 most frequently common cancer sites were the lung, stomach, colon and rectum, liver, breast, esophagus, pancreas, bladder, brain and lymphoma, accounting for 76.12% of the total cancer cases. The top 10 causes of cancer death were cancers of the lung, liver, stomach, esophagus, colon and rectum, pancreas, breast, leukemia, brain and lymphoma, accounting for 84.37% of the total cancer deaths.

Conclusion: Cancer remains a major disease threatening people's health in China. Prevention and control should be enhanced, especially for the main cancers.

Key words: Cancer registry; Incidence; Mortality; China

INTRODUCTION

Cancer has become a major public health issue in China. According to the third National Death Survey, cancer mortality had increased these years, ranking as the second leading cause of death^[1]. With increasing cancer burden, Chinese government led to a series of national initiative to address specific cancer issues including cancer surveillance. Systematic cancer surveillance could not only provide the statistics of cancer burden, but also form the basis of cancer prevention and control.

Population-based cancer registries play an important role in collecting and providing accurate

cancer statistics, building up the major component of cancer surveillance. The first population-based cancer registry in China was established more than 50 years ago. But the covering population of cancer registries around China was very limited in the 20th century^[2,3]. National Office for Cancer Prevention and Control was built up as a federal bureau fighting against cancer. And it published the first manual of national cancer registration in 1982. In 2002, National Central Cancer Registry (NCCR) was established by the Health Ministry of China to enhance systematic management of cancer surveillance. Since then, NCCR has enhanced the management of cancer registries all over the country. NCCR currently provides national cancer statistics, enabling a thorough definition of the cancer burden, which is a necessary process before addressing it. In 2010, the number of cancer registries which reported cancer statistics of 2007 to NCCR had increased to 48, and the quality of the cancer statistics

Received 2011-10-19; Accepted 2011-12-10

*Corresponding author.

E-mail: chenwq@cicams.ac.cn

had improved.

Based on the increasing demand of cancer information for effective cancer prevention and control, NCCR published the annual cancer report of China to provide the latest statistics from registration areas^[4]. In the present study, we pooled the qualified cancer data from population-based cancer registries and calculated the cancer incidence and mortality rates in 2007. Although the representativeness of the data in a national level might be considered, it remained the only source of information available on the profile of cancer in China. Our data also covered the largest population reflecting the most recent estimate of cancer burden in China.

MATERIALS AND METHODS

Data Source

NCCR of China was responsible for the collection, evaluation and publication of the cancer statistics from population-based cancer registries. In 2010, 48 cancer registries from 19 provinces reported cancer registration data of 2007 to NCCR. Of them, 20 registries were located in urban areas and 28 were located in rural areas. All data of incidence and mortality were reported to population-based cancer registries from hospitals, community health centers or other departments, including centers of township medical insurance and the New-type Rural Cooperative Medical System. The death record database was compared with cancer registration database to identify cancer deaths and supplement missing cases. Demographic information was provided by local statistics bureaus.

Quality Control

For data quality, the proportion of morphological verification (MV%), percentage of cancer cases identified with death certification only (DCO%) and mortality to incidence ratio (M/I) were used to evaluate the completeness, validity and reliability of the cancer statistics. Based on "Guideline of Chinese Cancer Registration" and the standard of data inclusion in "Cancer Incidence in Five Continents Volume IX"^[5], we used software including MS-Excel and IARC-crgTools issued by the International Agency for Research on Cancer/the International Association of Cancer Registries (IARC/IACR) for data check and evaluation^[6,7].

Of 48 cancer registries' data, 38 met the data quality criteria and were pooled into the national data for annual report. The population covered by the 38 cancer registries was 59,809,313, with 44,609,139 in urban and 15,200,174 in rural, 30,228,938 for males and

29,580,375 for females. The MV%, DCO%, and M/I ratio for the national pooled data were 65.83%, 1.95% and 0.64, respectively. The three indicators in cancer registries of urban areas were 67.71%, 2.28%, and 0.61, whereas in cancer registries of rural areas, they were 59.57%, 0.83% and 0.75, respectively.

Statistical Analysis

International Classification of Diseases (ICD)-10 and ICD-O-3 were used for the coding of the cancers. Crude incidence and mortality rates were prepared for different types of cancer, by sex, area and for 19 age groups (0-, 1-4, 5-9, ... 80-84, 85+ years). Age-standardized rates were calculated using the Chinese population (1982) and World Segi's population. The cumulative risk of developing or dying from cancer before 75 years old is calculated and presented as a percentage.

RESULTS

The number of overall new cancer cases reported from qualified cancer registries of China was 165,171, including 92,266 for males and 72,905 for females. The number of overall cancer deaths was 105,916, including 66,248 for males and 39,668 for females. The detailed information for the number of new cases and cancer deaths in each cancer registry is shown in Table 1.

The crude incidence rate for all cancers in registration areas was 276.16/100,000 in 2007 (305.22/100,000 for males and 246.46/100,000 for females). The age-standardized rates by China and World population were 145.39/100,000 and 189.46/100,000, respectively. Among the patients aged 0-74 years, the cumulative incidence rate was 21.68%. The crude cancer incidence rate in urban areas was 284.71/100,000 and it was higher than that in rural areas (251.07/100,000). After age standardization, the incidence rate in urban was lower than that in rural (Table 2).

Lung cancer was the most common cancer with crude rate of 51.25/100,000, followed by stomach cancer, colorectal cancer, liver cancer and breast cancer. The top ten most common cancers accounted for 76.12% of all registered new cases. Lung cancer in males and breast cancer in females were the most frequently diagnosed cancers (Table 3). Cancer atlas also showed difference between urban and rural areas. The incidence rates of lung cancer and colorectal cancer were higher in urban than those in rural. However, the incidence rates of stomach cancer, liver cancer and esophageal cancer were higher in rural than those in urban (Table 4).