ABSTRACT

Purpose: The descriptive epidemiology of invasive cervical cancer in Massachusetts will provide information for the Massachusetts Department of Public Health (MDPH). Preventing cervical cancer programs target cervical cancer screening programs for reducing cervical cancer incidences and mortality.

Methods: Invasive cervical cancer cases counted and incidence rates for the period 2003-2007 were calculated and presented by year of diagnosis, age, race/ethnicity, and histologic type. Age-specific changes (AAPC) age-adjusted incidence and mortality rates were calculated for 1982-2007. Probabilities of developing and dying from cervical cancer were calculated for the period 1998-2007.

Results: Age-adjusted incidence and mortality rates trends (AAPC) decreased at 5.5% and 2.0% per year until 1996, then decreased 4.5% and 9.2% per year until 2007. Age-specific incidence rates-fluctuated between 10.1 and 11.9 per 100,000 for the period 1982-2007. Hispanic had the highest incidence rates; however, Black, non-Hispanic had the highest mortality rates among racial-ethnic groups. The probability of developing and dying from cervical cancer over the lifetime (50 years) was 6.0% and 0.7%, respectively.

Discussion: Pap smears, which is used to detect treatable cervical cancer precursors, is responsible for the decreased incidence and mortality of invasive cervical cancer. The use of human papillomavirus (HPV) vaccine could potentially reduce rates even further. Advances for cancer-screening needs to continue as a component of cancer control efforts.

BACKGROUND

The period 2003-2007, the average annual age-adjusted incidence rate for invasive cervical cancer was 5.9 cases per 100,000 females. The age-adjusted mortality rate for cervical cancer was 1.4 death per 100,000 females. The national average age-adjusted incidence rate of invasive cervical cancer was 5.0 cases per 100,000 females for the period 2003-2007. The age-adjusted mortality rate of invasive cervical cancer was 2.4 death per 100,000 females in the United States. The National Cancer Institute reports the five-year relative survival rates of cervical cancer by stage between 1999 and 2006 (with the follow-up up to 2007) as follows: 91.2%, 75.7%, 17.0%, and 18.5% for localized, regional, distant, and unstaged, respectively.

METHODS

This paper was based on data reported by the Massachusetts Cancer Registry (MCR) between 1982 and 2007. Cervical cancer case counts and incidence rates are presented by age, race/ethnicity, stage at diagnosis, and histology. All analyses include only invasive cervical cancers. The mortality data are reported to the Massachusetts Registry of Vital Records and Statistics between 1992 and 2007. Cervical cancer deaths are determined by Surveillance, Epidemiology, and End Results (SEER) Program and Massachusetts Community Health Information Profile (MassCHIP). The yearly death incidence and death rates are presented by year of death and race/ethnicity. The population estimates used were generated with MassCHIP.

Probabilities of developing and dying from cervical cancer were calculated using SAS 9.2. The trends were analyzed using the Joinpoint Regression Program version 3.1.1. The probabilities were calculated using DCCS-2.2. The results were refined using the Surveillance Regressive Program version 5.0.3. Source of Massachusetts Cancer Registry and MassCHIP EHP 1990-2007.

DESCRIPTIVE EPIDEMIOLOGY OF CERVICAL CANCER IN MASSACHUSETTS

B. M. Backus, S. T. Gershman

Massachusetts Cancer Registry, Massachusetts Department of Public Health, Boston, MA, USA

Figure 1 presents the average annual age-adjusted cervical cancer incidence rates by histologic type for Massachusetts females, 2003-2007.

Figure 2 presents the average annual age-specific cervical cancer incidence rates for Massachusetts females for the years 1982-2007.  In 1977, the incidence rate for women aged 15-24 years was the highest of all age groups (111.3 cases per 100,000). The age groups in order were found to be 15-24 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years, 45-49 years, 50-54 years, 55-59 years, 60-64 years, 65-69 years, 70-74 years, 75-79 years, 80-84 years, and 85+ years.

Figure 3 presents the average annual age-adjusted cervical cancer incidence rates by race/ethnicity for Massachusetts females, 2003-2007.

Average Annual Age-Adjusted Cervical Cancer Incidence and Mortality Rates for Massachusetts Females, 1982-2007

Average Annual Age-Specific Cervical Cancer Incidence Rates

Average Annual Age-Adjusted Cervical Cancer Incidence Rates

Distribution of Invasive Cervical Cancer Incident Cases by Stage

Distribution of Invasive Cervical Cancer Incident Cases by Histologic Type

Distribution of Invasive Cervical Cancer Incident Cases by Race/Ethnicity

Distribution of Invasive Cervical Cancer Incident Cases by Age

Analysis of the probability of developing and dying from cervical cancer by a specific age for Massachusetts females from 1982-2007. The overall probability of developing cervical cancer over the lifetime (50 years) was 0.8% for females.

The overall probability of dying from cervical cancer over the lifetime (50 years) was 0.2% for females.

The way to continue low cervical cancer numbers is to bring knowledge to the future generations of girls and women.