BACKGROUND

- Colorectal cancer (CRC) incidence and mortality rates have decreased significantly in recent years in the United States.
- However, in Puerto Rico CRC incidence and mortality rates continue to increase.
- In Puerto Rico, CRC is the 2nd cause of cancer in men and women and the leading cause of cancer deaths in both sexes combined (3rd in men and 4th in women).
- Through appropriate screening, CRC is highly preventable or it can be diagnosed in an early stage.
- In Puerto Rico similar to the United States, CRC screening rate has increased over time.
- Nevertheless, CRC screening rates in Puerto Rico remain below the United States (52.5% vs. 66.6%, BRFSS 2014) and far below the Healthy People 2020 target of 70.5%.
- Racial/ethnic and sex variations in incidence and mortality of CRC have been attributed to differences in risk factors and access to screening and treatment.

PURPOSE

- To assess the incidence and mortality trends for CRC in Puerto Rico by sex and age-groups for 1987-2012.

METHODS

- Microscopically confirmed CRC incident cases were obtained from the Puerto Rico Central Cancer Registry (PRCCR). Mortality data were acquired from the Puerto Rico Demographic Registry through the PRCCR.
- Data were stratified by sex, age groups, stage at diagnosis, and time period. Incidence and mortality rates were calculated per 100,000 and age-adjusted to the 2000 United States Standard Population using the SEER*Stat software version 8.3.2.
- NCIs Joint Regression Program version 4.2.0.2 was used to identify inflection points and to compare incidence and mortality trends using a permutation compareability test. The derived Annual Percentage Change (APC) was used to measure trends or change in rates over time. Also the Average APC (AAPC) was presented to summarize the APCs over the 1987–2012 time period. It is computed as a weighted average of the APCs from the joinpoint model. Statistical significance was established at alpha < 0.05.

RESULTS

- A total of 32,639 (54.1% men and 45.9% women) cases of CRC were diagnosed in Puerto Rico during 1987–2012. A total of 13,721 (54.0% men and 46.0% women) died during the same period.
- Overall, the jointpoint model identified a significant change in the incidence trend of CRC from 1987 to 2006 (APC=2.0%, p<0.05); however, from 2006 to 2012 it shows a non-significant decline (APC=0.4%, p>0.05).
- During the study period, there were differences in the incidence trends by sex. In men increased 1.8% (p<0.05) per year; while for women, showed a significant increase from 1987-2005 1.90% (p<0.05) and then a non-significant decline from 2006-2012 (APC=-0.7%, p>0.05).
- Changes in CRC incidence trends were observed by stage at diagnosis. Localized stage CRC incidence rates have increased 3.6% (p<0.05) per year, while regional stage CRC incidence rates showed a non-significant increase (APC=1.1%, p>0.05).
- Incidence rates are very low below age <5 years, nevertheless among this age group and among those aged 80+ a significant increase was observed between 1987–2012, APC=2.1% (p<0.05) and 1.64% (p<0.05), respectively. However, among the population aged 50–64 and 65–79 years a significant increase followed by a non-significant decline was observed.
- Differences in mortality trends (1987-2012) among men and women were also observed. Mortality trend for men increased 1.5% (p<0.05) per year; while, among women remained stable (APC=0.12%, p>0.05).
- When mortality trends were analyzed by age-groups, a significant increased trend was observed among the population aged 50–64 and 80+ years age-group, APC=1.1% (p<0.05) and 1.40% (p<0.05), respectively.

DISCUSSION

- Overall, incidence trends have been stabiles after 2006; this pattern was observed for women but not for men.
- Localized CRC incidence trend had a slightly but significant increase since 2009, exceeding regional CRC. These patterns could be an indication of early screening among the population.
- The results of this study suggest the need for continuous improvement in the CRC screening strategies among Puerto Rico’s population and especially in men.
- Further studies are warranted to evaluate others factors that affect the CRC incidence and mortality patterns in Puerto Rico.

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