Colorectal Cancer: 2 Steps Backward

Rebecca Siegel, MPH, and her colleagues from the American Cancer Society (ACS)’s Surveillance and Health Policy Research department were writing what they thought would be a fairly routine article on colorectal cancer (CRC) incidence trends when they came across some unexpected data: a striking increase among young adults. “It just jumped out at us,” she says.

The study, which was recently published in Cancer Epidemiology Biomarkers and Prevention (2009;18:1695–1698), raises important questions concerning CRC risk factors likely to have contributed to these surprising results. And although only approximately 10% of CRC cases occur in young adults, these findings are a powerful reminder that clinicians should not dismiss symptoms that potentially signal CRC, even if they occur in a person aged younger than 50 years.

CRC has been one of the brightest spots in cancer prevention efforts. CRC rates have been generally declining since the 1980s, and the declines have accelerated in recent years. Since 1998, age-standardized incidence rates for the US population have decreased by an annual average of 2.8% in men and 2.2% in women. CRC screening, particularly colonoscopy in average-risk people aged 50 years and older, gets the majority of the credit for these advances and underscores the benefits of detecting and removing adenomatous polyps before they develop into cancer.

In this study, the investigators used data regarding invasive CRC cases diagnosed between 1992 and 2005 from the National Cancer Institute’s 13 oldest Surveillance, Epidemiology, and End Results (SEER) cancer registries to calculate annual, age-adjusted CRC incidence rates and the annual percent changes in rates for people ages 20 to 49 years, stratified according to sex and race/ethnicity.

In non-Hispanic whites (the only group with enough cases for subset analyses), the team was able to analyze CRC incidence among 3 age groups (20–29 years, 30–39 years, and 40–49 years) and by stage of disease at diagnosis (local, regional, distant, or unstaged) and anatomic site of disease (proximal colon, distal colon, or rectum). These analyses demonstrated that the overall incidence rate of CRC has been increasing since 1992 among adults ages 20 to 49 years: by 1.5% per year in men and 1.6% per year in women. In addition, there were differences in trends noted among various racial and ethnic groups. In non-Hispanic white men and women, there was an average annual increase of 2.0% and 2.2%, respectively. CRC incidence increased by 2.7% per year among Hispanic men, with no statistically significant changes observed among Hispanic women, non-Hispanic black men or women, and Asian American/Pacific Islander men or women. (The investigators could not provide incidence rates for American Indians/Alaska Natives because of limited data for this group.)

Annual percentage increases were highest in the group of patients ages 20 to 29 years: 5.2% for men and 5.6% for women. Anatomic subsite analysis indicated significant increases in tumors of the distal colon (1.5% for men and 2.3% for women) and rectum (3.5% for men and 2.9% for women).
women), but not in the proximal colon. In contrast, for adults aged 50 years and older during the same time period, the incidence of CRC decreased by at least 1.8% annually for every diagnostic stage and by at least 2.7% annually for each anatomic site.

“This was a descriptive study, not one from which we can make cause-and-effect judgments,” Ms. Siegel says. Nonetheless, unexpected results such as these invite speculation. Ms. Siegel and her colleagues note in their discussion that obesity is a strong risk factor for CRC, especially in men, and some studies have indicated that obesity poses a higher risk of CRC in premenopausal than in postmenopausal women. In addition, the increase in obesity has fueled an increase in type 2 diabetes mellitus, another known risk factor for CRC. Dietary habits have also changed in recent decades and may explain at least some of the increased CRC risk noted among young adults. Ms. Siegel and her colleagues noted that the consumption of red and processed meats has been linked to an increased risk of CRC, whereas dairy products have been associated with a decreased risk. Since the 1970s, fast-food consumption has increased by a factor of 5 in young children and tripled in adults. Compared with those who do not eat fast food, people who eat more fast food tend to eat more red and processed meats and consume less milk. Ms. Siegel and her colleagues discussed nutritional data demonstrating that energy intake from burgers increased 30% between 1977 to 1978 and 1994 to 1996, whereas energy intake from milk decreased 42% during the same time period. “There is no recommendation for screening for CRC in younger adults who are not in a high-risk group [as defined in current screening guidelines, based on personal or family medical history of cancer, adenomas, or predisposing conditions],” says study co-author Elizabeth Ward, PhD, vice president of Surveillance and Health Policy Research for the ACS, “so they are not getting the benefits of screening,” she adds.

According to Dr. Ward, it is unlikely that changes in screening technology or increased scrutiny could account for the increased CRC incidence noted among young adults. “The cancers in these patients were found because they are symptomatic. There has been no huge change in the technology of diagnosis” that could account for the observed increases, she says.

Like Ms. Siegel, Dr. Ward also believes that changes in CRC risk factors in recent cohorts of children and young adults may explain at least some of the increased incidence. Should the age for CRC screening be lowered among people of average risk? Both Ms. Siegel and Dr. Ward agree that the changes are not large enough to justify that step.

“These findings have 2 implications,” Dr. Ward says. “First, when young adults develop symptoms indicative of CRC, the clinician should consider the possibility of CRC even though few cases occur in younger adults,” she says. The second lesson from these data is the importance of following ACS recommendations for diet and physical activity and the need to maintain a healthy body weight, she adds. “And the health care provider must ask about family history. People with a close family history of colorectal adenomas or carcinoma do need earlier screening,” she says.

Global CRC Incidence Trends

Dr. Ward and her colleagues reported equally unsettling findings as a second article in the same issue of Cancer Epidemiology Biomarkers and Prevention (2009;18:1688–1694). This study used the International Agency for Research on Cancer (IARC)’s Cancer Incidence in Five Continents (CI5) databases to calculate the ratio of incidence rates for 1998 through 2002 versus 1983 through 1987. Significant increases in the incidence of CRC (which were greater among men than women) were noted in economically transitioning countries of Eastern Europe, most parts of Asia, and select areas of South America. The United States was the only country in which CRC incidence rates declined for both males and females. “In some of these countries, CRC rates have exceeded those in the United States as populations adopt a Western lifestyle and dietary habits,” Dr. Ward says.

Ms. Siegel and Dr. Ward agree that diet, physical activity, and weight trends in most of the world (and in some regions, trends in tobacco use) are the likely factors responsible for the increasing incidence of CRC. In high-income countries with established screening practices, such as the United States, this influence can be outweighed by the effect of screening among individuals aged 50 years and older, resulting in overall declines in age-standardized CRC incidence. However, this overall decline in the United States should not distract attention from the very disturbing trends observed among other populations and the need for appropriate public health, health policy, and health care interventions.