"War on Cancer" More Successful Than Perceived

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March 11, 2010 — Overall, the rates of cancer-related mortality have substantially declined in the United States. According to the results of a new study published online March 9 in *PLoS ONE*, cancer death rates have declined in both men and women, whether they are measured against baseline rates in 1970/71, when the National Cancer Act was initiated, or against the peak rates seen 1990/91.

Researchers from the American Cancer Society found that for all cancers combined, mortality rates (per 100,000) increased in men from 249.3 in 1970 to 279.8 in 1990, and then declined to 221.1 in 2006. This yielded a net decline of 21% from 1990, a peak year, and a drop of 11% since 1970, a baseline year.

In similar fashion, the combined death rates from all cancers in women rose from 163.0 in 1970 to 175.3 in 1991, and then decreased to 153.7 in 2006. This was a net decline of 12% and 6% from the 1990 and 1970 rates, respectively.

The decline in cancer death rates since 1990 has resulted primarily from reductions in tobacco use, increased screening that allows for early detection of several cancers, and modest to large improvements in treatment for specific cancers, the authors note.

Success or Failure?

These findings run "contrary to the pessimistic news from the popular media," the authors note, which often question the success of the "war on cancer."

"The general public does not pay attention to the rates, which is the best measure for determining trends," explained lead author Ahmedin Jemal, PhD, strategic director for cancer surveillance at the American Cancer Society.

Instead, the focus is frequently on the number of people who die from cancer. "But as the population ages and grows, there is going to be an increase in new cases," said Dr. Jemal in an interview. "So because of aging and population growth, we are going to see more cancer cases and more deaths. It is important to differentiate between the count and the actual rates."

In addition, there has been little to no improvement in survival for some cancers, such as pancreatic and lung cancers. These have drawn media attention, Dr. Jemal pointed out. However, "there has been major improvement in survival in childhood cancers," he said.

The signing of the National Cancer Act of 1971 by President Richard Nixon is generally viewed as the beginning of the war on cancer. But as cancer continues to remain a major cause of death nearly 4 decades later, the success of the initiative has been debated, the authors point out.

Even though age-standardized cancer death rates have been declining since the early 1990s, some reports have cited limited improvements in death rates as evidence that the imitative is a

failure. But many of these analyses, the authors explain, have failed to take into account the "dominant and dramatic" increase in cancer death rates associated with tobacco use during the last part of the 20th century.

Temporal trends in death rates are the most reliable measure of progress against cancer, reflecting improvements in prevention, early detection, and treatment. They can provide important insight into factors associated with economic development and lifestyles that drive cancer rates upward, the authors note. They are also the most effective measure to counteract these changes and reduce the cancer burden.

Substantial Progress Has Been Made

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In questioning the success or failure of the war on cancer, Allen S. Lichter, MD, CEO of the American Society of Clinical Oncology, said that "the answer is that we certainly have made substantial progress in many major cancers."

"Have we made progress in every cancer? No, but in the major ones, yes," he told *Medscape Oncology* in an interview.

The power of this paper, he explained, is that it clearly shows that the death rate has declined. "In most major cancers, it is below what it was when the National Cancer Act was initiated," Dr. Lichter said.

The data used in this study go only until 2006, but Dr. Lichter feels that data from 2007, 2008, and 2009 will continue to show declining cancer-related mortality.

But he acknowledged that the pace of progress is too slow. "We are all frustrated that we have not made more advances," he said. "Part of it is due to the unexpected complexity of cancer. We now have a much deeper appreciation of cancer."

Dr. Lichter added that a concern is the natural pace of research, which involves translating molecular discoveries made in the laboratory into compounds, then setting up clinical trials, and going through the eventual approval process.

Another concern is the monetary investment in research. "Some areas of cancer research have not been well funded," he said.

More Emphasis on Prevention

One area that has been neglected is prevention. "We have been primarily focused on treatment and not prevention, and that should be given more attention," said Dr. Jemal. "We certainly need better treatments, but we also need to focus on primary prevention — preventing cancer in the first place."

For example, the majority of lung cancers are related to tobacco use. "But how do we promote healthy behaviors, like smoking cessation, maintaining a healthy body weight, and being physically active?" he asked.

Screening is another area that can not only detect cancer at an early stage, it can also identify precancerous lesions. "Yet only about 50% of people are getting screened for colorectal cancer according to guidelines," he said. "This indicates that we need better education tools, better access to care, and improvements in screening techniques."

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Right now, explained Dr. Jemal, there are significant barriers to both preventive care and treatment. "Millions of people are not benefiting from current discoveries," he said. "There is a gap between what we know and what we can deliver."

Declining Rates Seen in Major Cancers

Dr. Jemal and colleagues examined trends in age-standardized death rates in the United States using the SEER*Stat database. Aside from the overall decline in cancer-related deaths, reductions in age-standardized death rates were observed in each major racial and ethnic group for all cancers combined since the early 1990s.

However, the onset and magnitude of the decreases varied among subgroups. For example, the authors note that the decline in cancer deaths among American Indian and Alaskan Native women was smaller, and among Hispanic women began later, than it did among white women. In addition, black Americans of both sexes still have a higher death rate than white Americans.

When looking at individual cancers, the authors note that death rates declined for 15 of the 19 cancer sites, including the 4 major cancers: lung, colorectum, and prostate cancers in men, and breast and colorectum cancers in women.

The death rates for cancers of the oral cavity, stomach, bladder, kidney, brain, and non-Hodgkin's lymphoma and leukemia all declined during the most recent time period reviewed, in both men and women. Cancers of the esophagus and ovary, melanoma, and Hodgkin's lymphoma also decreased in women.

Of particular note, the 2006 death rates for Hodgkin's lymphoma in men, cervical cancer in women, and stomach cancer in both sexes were less than one third of the 1970 rates.

Rates Rising for Some Cancers

But it was not all good news, the authors note. Death rates increased for esophagus cancer and melanoma in men, liver cancer in both men and women, and pancreatic cancer in women. Rates stabilized for pancreatic cancer and Hodgkin's lymphoma in men and for cervix and corpus and uterine cancers in women.

Death rates nearly doubled for melanoma and liver cancer in men, and tripled for lung cancer in women. The authors point out that the lung cancer death rates among women did not begin to decline until 2002, which reversed a continuously increasing trend that had been observed since the 1930s.

Potential Life Gained

They also calculated years of potential life lost due to cancer before the age of 75 years for 2006. If the 1970 age-specific cancer death rates had continued up until 2006, the years of potential life lost would have been 6.4 million. For individuals younger than 75 years, the decrease in cancer death rates during the 36-year time interval (1970 to 2006) resulted in about 2.0 million years of potential life gained.

Overall, the continued decline in cancer deaths from 1990 to 2006 in men and from 1991 to 2006 in women translates into "averting 561,400 cancer deaths in men and 205,700 cancer deaths in women that would have occurred if the 1990/91 rates were to prevail afterwards," they write.

"Continued and increased investment in cancer prevention and control programs, access to high-quality healthcare, and basic and clinical research could accelerate this progress," the authors conclude.

Future Trends

Research at the molecular level and understanding the molecular drivers and triggers of cancer is essential to developing better treatments, Dr. Lichter explained. "Not only are there more than 100 types of cancer, there are different cancers within each organ system," he said. "We are recognizing, for example, that treating all lung cancer in the same manner is a thing of the past. The key is now more individualized care, which is based on specific types of biology."

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Two other issues are improving access to healthcare and providing care to long-term cancer survivors. Patients without health insurance have double the risk of dying, compared with those who have it, Dr. Lichter said. "For the 60,000 to 70,000 patients who face cancer without insurance, or who lose it during treatment, this can have a very important effect on survival."

Patients who have been cured or who are in long-term remission also need care; they could be dealing with long-term effects of both the cancer and its treatment. "We want to make sure that patients do not win the battle and lose the war," he said.

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