**High CVD Mortality Risk for Cancer Patients**

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Survivors of multiple types of cancer have a similar risk of dying of cardiovascular disease (CVD) or cancer, according to an analysis of more than 3 million cancer survivors.

Overall, CVD accounted for 11% of deaths among patients who had new cancer diagnoses during 1973-2015. Three-fourths of the CVD deaths involved heart disease. In absolute terms, the largest number of CVD deaths involved patients with bladder, prostate, or breast cancer, which collectively accounted for 60% of all the CVD deaths. Patients with eight other types of cancer were about as likely to die of CVD as cancer, researchers reported in the study online in the [*European Heart Journal*](https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehz766/5637730).

"The risk of death from cardiovascular diseases is several times that of the general population in the first year of diagnosis," Kathleen M. Sturgeon, PhD, of the Penn State Cancer Institute in Hershey, said in a statement. "Sometimes, this risk decreases, but for most, this risk increases as survivors are followed for 10 years or more. Increasing awareness of this risk may spur cancer survivors to implement healthy lifestyle behaviors that not only decrease their risk of cardiovascular disease, but also the risk of cancer recurrence."

The analysis confirmed previous research showing that patients with cancer have a risk of CVD mortality that is two to six times greater as compared with the general population, according to the author of an [accompanying editorial](https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehz781/5637731).

"This is a key message that every cardiologist needs to hear," wrote Joerg Herrmann, MD, of the Mayo Clinic in Rochester, Minnesota. "Secondly, the CVD mortality risk is evident throughout the continuum of cancer care and entails an acute phase (early risk) and a chronic phase (late risk)."

"In view of such grave and persistent consequences, a reactive management approach that comes into play solely when clinical presentations and complications arise is no longer in order," he said. "Rather, one would advocate for a proactive approach that starts before any cancer therapy is given and continues for a lifetime thereafter. Thirdly, even with the best possible cardio-oncology care, no difference in population-based outcomes may be achieved in patients with relentless malignancies, while for others it is of increasing significance."

Sturgeon, Zaorsky, and co-authors undertook a study to improve understanding of CVD mortality in the growing population of cancer survivors. They analyzed CVD mortality in patients with 28 different types of cancer, focusing on CVD mortality risk as a function of calendar year, age at cancer diagnosis, and follow-up duration after diagnosis.

The investigators used data from the National Cancer Institute's Surveillance, Epidemiology, and End Results cancer registry network. The team used standardized mortality ratios (SMRs) to estimate CVD mortality risk among patients with cancer diagnoses from 1973 to 2012 and from the "modern treatment era" of 2000-2015. The SMRs provided the relative risk of CVD death for cancer survivors as compared with the general population of the U.S. CVD comprised heart disease, hypertension, cerebrovascular disease, atherosclerosis, and aortic aneurysm.

The analysis included 3,234,256 patients, 49.3% of whom died from cancer (38%) or CVD (11.3%) during the study period. As a general observation, the data showed that older age at cancer diagnosis was associated with increased cancer mortality and CVD mortality. Additionally, the investigators found that a cancer diagnosis in the later years of the study period was associated with decreased cancer mortality and CVD mortality, suggesting that more patients died of other causes.

In terms of absolute numbers, patients with prostate cancer and breast cancer made up almost half of the CVD mortality population (49.2%). The following six types of cancer were associated with a higher than average risk of CVD mortality:

* Bladder -- 19.4%
* Larynx -- 17.3%
* Prostate -- 16.6%
* Corpus uteri -- 15.6%
* Colorectal -- 13.7%
* Breast -- 11.7%

**Key Analyses**

The data also showed that patients with a CVD mortality risk of less than 10% had cancers with a high mortality (lung, liver, brain, stomach, gallbladder, multiple myeloma, pancreas, esophagus, and ovary). Cancers with a more favorable prognosis tended to have higher CVD mortality, although cancer-related mortality remained the more common cause of death.

Age at cancer diagnosis also influenced the risk of CVD death. Younger patients had an increased likelihood of dying of CVD, although only 340 CVD deaths occurred in patients ages 15-35 during 1973-2012. Cancer diagnosis before age 55 was associated with a 10-fold greater risk of CVD mortality as compared with the general population. Thereafter, the risk of CVD death decreased with increasing age at diagnosis (SMR 7.5, 3.8, 2.4 for each 10-year age increment).

The analysis of CVD mortality during follow-up showed that the first year after cancer diagnosis carries the highest risk of CVD death. Nevertheless, SMRs for cancer survivors remained higher as compared with the general population at all time points after diagnosis.

[Source Reference: Sturgeon KM, et al "A population-based study of cardiovascular disease mortality risk in U.S. cancer patients" Eur Heart J 2019; doi:10.1093/eurheartj/ehz766.](https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehz766/5637730)