Ambulatory function among cancer survivors may be an important determinant for survival

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Cancer survivors had a greater risk of reduced ambulatory function, which was associated with an increased risk of death, according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

The diagnosis and treatment of cancer has been shown to be associated with poor functional health for common cancer types, such as those of the breast and prostate, but less is known about the association for other cancers, explained Elizabeth Salerno, Ph.D., MPH, assistant professor of surgery at Washington University School of Medicine in St. Louis, who conducted the research at the National Cancer Institute. "Given that cancer survivors are living longer than ever, understanding how the diagnosis and treatment of a broad range of cancers may affect ambulatory function—a potentially modifiable risk factor—could lead to new treatment and rehabilitation strategies to improve the health of these patients," she explained.

In this study, Salerno and colleagues examined whether reduced ambulatory function was linked to various cancer types, and whether ambulatory function was associated with survival. Salerno and colleagues examined data from the National Institutes of Health American Association of Retired Persons (AARP) Diet and Health Study, which included over 500,000 AARP members between the ages of 51 and 70. AARP members received a questionnaire assessing demographics,

medical history, and diet between the years of 1995 and 1996 and a follow-up questionnaire between 2004 and 2006 assessing health status, lifestyle, and ambulatory function, among other factors. Ambulatory function was determined by self-reported walking pace and mobility disability.

After excluding individuals for reporting inaccuracies and incomplete questionnaires, the final sample included 30,403 cancer survivors and 202,732 individuals who had never been diagnosed with cancer. The median age of participants was 61.8 years, and most individuals identified as white (92.4 percent), male (56.7 percent), and in very good health (56.4 percent). A broad range of cancer types was represented in the study population, including cancers of the breast, respiratory system, lymphatic system, skin, genitourinary tract, and gastrointestinal tract, among others.

Salerno and colleagues found that cancer survivors were 42 percent more likely to report walking at the slowest pace compared to individuals without a cancer diagnosis. After adjusting for demographics, health status, cancer type, and body mass index, cancer survivors also had a 24 percent greater risk of mobility disability. Lower ambulatory function was associated with several cancer types, and the strongest associations were observed for survivors of respiratory or oral cancers.

Slower walking pace and mobility disability were also associated with increased risk for all-cause and cancer-specific mortality in cancer survivors after adjusting for demographics and cancer characteristics. Survivors who reported walking at the slowest pace had over twofold increased risk of both all-cause and cancer-specific mortality compared with survivors who reported a brisk walking pace. Similarly, survivors with mobility disability had 80 percent and 64 percent greater risk of all-cause and cancer-specific mortality, respectively.

While slower walking pace and mobility disability also increased mortality risk in individuals without cancer, Salerno and colleagues found that the association between ambulatory function and mortality was greater for cancer survivors than for individuals without cancer. When compared with individuals without a cancer diagnosis who reported a brisk walking pace, cancer survivors who had the slowest walking pace had over 10-fold increased risk of death; those without cancer with the slowest walking pace had over threefold increased risk of death.

"Our findings suggest that functional health may be adversely affected by a broad range of cancer diagnoses and may be an important determinant for survival," said Salerno. "There is still much to be learned about these complex relationships, but our results highlight the potential importance of monitoring, and even targeting, ambulatory function after cancer for survival benefits, particularly in older cancer survivors."

Future research from Salerno and colleagues will aim to understand why certain cancers had more robust associations with ambulatory function and stronger associations between ambulatory function and mortality. "More information about behavioral, biological, and cancer-specific factors from before, during, and after diagnosis and treatment will be important to better characterize these associations in specific cancer types," she said.

A limitation of the study is that all data on walking pace and mobility disability were self-reported. While self-reporting is important for collecting widespread surveillance data, it may not be as precise as clinical measures, Salerno explained. In the future, Salerno is interested in examining the correlation between self-reported ambulatory function and more objective measures in the context of cancer and mortality. Additional limitations include the lack of comprehensive treatment data, the fact that the survivor population was relatively healthy and had

mostly early-stage disease, and the potential for additional confounding variables not controlled for in the analyses.

More information: *Cancer Epidemiology, Biomarkers & Prevention* (2021). DOI: 10.1158/1055-9965.EPI-20-1473