Four-Week Cancer Treatment Delay Tied to Increased Mortality Risk

Longer delays were associated with worsening risk of death.

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A four-week delay in cancer therapy—whether surgery, radiation therapy or systemic treatment—significantly increased the risk of death, according to findings published in BMJ.

“Even a four-week delay of cancer treatment is associated with increased mortality across surgical, systemic treatment and radiotherapy indications for seven cancers,” wrote Timothy Hanna, MD, PhD, of Queen’s University in Ontario, and colleagues. “Policies focused on minimizing system-level delays to cancer treatment initiation could improve population-level survival outcomes.”

While earlier studies have established a link between delayed cancer treatment and mortality, a clear assessment of this association has been lacking. A better understanding of the impact of delays on risk of death and other consequences is needed to design cancer care that works for all patients. In light of the COVID-19 pandemic and associated lockdowns, determining the effect of cancer treatment delays is extremely important.

The research team analyzed the link between every four-week delay interval in cancer treatment and mortality. For their systematic review and meta-analysis, they looked for relevant studies published between January 2000 and April 2020. They measured delay as the time period between cancer diagnosis and the first round of treatment or the time between two rounds of treatment.

The researchers selected 34 studies for 17 different treatment indications across three modalities (surgery, systemic treatment and radiation therapy) for seven types of cancer including bladder, breast, colon, rectum, lung, cervical cancer and head and neck cancers.

For every four-week delay, they calculated a hazard ratio for death due to any cause for people who experienced a delay in their cancer treatment compared with those who did not experience a delay. They found a significant association between treatment delay and increased mortality for 13 of the 17 included indications.

For all three treatment modalities, a four-week delay in treatment was linked to an increased mortality risk. In the case of surgery, such a delay would result in a 6% to 8% increase in risk. For

definitive head and neck cancer radiation therapy, the risk was even higher at 9%.

Hazard ratios for systemic treatment—for example, chemotherapy or targeted therapies—varied widely. For adjuvant (post-surgery) systemic therapy for colorectal cancer, a four-week delay would increase mortality risk by 13%.

Further, longer delays were linked with greater risk. Eight- and 12-week delays in breast cancer surgery would increase mortality risk by 17% and 26%, respectively.

Consequently, longer delays would ramp up mortality at the population level. A 12-week surgical delay over a year for all people with breast cancer would result in 6,100 extra deaths in the United States, 1,400 in the United Kingdom, 700 in Canada and 500 in Australia, provided surgery was the first-line treatment for 83% and delay-free mortality was 12%.

The researchers caution against drawing conclusions on minimum periods of safe delay. “We note that a delay of less than four weeks should not be justified as safe based on our findings,” wrote the researchers. They found a 4% bump in mortality risk even after a two-week delay in breast cancer surgery.

Also, the researchers suggested that people experiencing longer delays could be predisposed to poor outcomes due to comorbidities or other factors. On the other hand, those who survive despite longer waiting periods may have less aggressive cancers.

While treatment delays could be due to various factors, system-level delays need to be reduced.

“This new work reinforces the critical need for system-level efforts to minimize waiting times for cancer treatments,” wrote researchers in an accompanying editorial. “Further, by quantifying the relative impact of treatment delays, Hanna and colleagues’ data can be used as a resource for modeling studies exploring how future treatment delays could influence absolute measures such as years of life lost to patients with cancer or, in pandemics, the balance of risk and benefit associated with pandemic measures at the population level.”

Click here to read the study in BMJ.
