Immunotherapy Linked to Higher Risk of Adverse Cardiovascular Events

People with a prior history of heart disease were at greater risk when treated with immune checkpoint inhibitors.

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People receiving checkpoint inhibitor immunotherapy for cancer have a higher rate of adverse cardiovascular events, and for those with a history of heart failure, the risk is even greater, according to findings published in the Journal of Clinical Oncology.

Checkpoint inhibitors work by unleashing immune responses against cancer, but they can also activate the immune system more broadly, leading to excessive inflammation than can harm almost any organ. Checkpoint inhibitors have been known to cause immune-driven inflammation of the heart muscle, known as myocarditis. But whether immunotherapy causes other negative cardiovascular effects is unclear.

Dorien Laenens, MD, of University Hospitals Leuven in Belgium, and colleagues set out to determine the prevalence and risk factors associated with major adverse cardiovascular events in 672 people who received checkpoint inhibitor immunotherapy for cancer. For comparison, they also looked at people without cancer and cancer patients whose treatment did not include checkpoint inhibitors.

The main clinical outcome was major adverse cardiovascular events, a combined endpoint that included acute coronary syndrome, heart failure, stroke and transient ischemic attack. Secondary outcomes included the incidence of acute coronary syndrome and heart failure considered separately. The researchers took into account age, sex, type of cancer and cardiovascular history when making their comparisons.

After a follow-up period of 13 months, 69 of the 672 people treated with checkpoint inhibitors experienced major adverse cardiovascular events, an incidence of 10.3%. The median time to develop such an event was five months. In this group, 55% died, with nearly 2% of the deaths attributed to a cardiovascular cause.

For the matched analysis, 421 people treated with checkpoint inhibitors, 396 cancer patients receiving other types of therapy and 399 people without cancer were included.

In this analysis, people treated with checkpoint inhibitors developed major adverse cardiovascular events at a rate of 8.51 per 100 patient-years, compared with 5.23 for cancer patients who received other types of treatment and 1.91 for people without cancer. That is, patients who received other cancer treatments had a 39% lower risk for these events, and people without cancer had a 76% lower risk, compared with those who received checkpoint inhibitors.

In a multivariate analysis, a prior history of heart failure or valvular heart disease were both significantly linked to a higher risk for major adverse cardiovascular events in people taking checkpoint inhibitors.

“Our data stress the clinical relevance of a cardiovascular workup of patients with cancer before exposure to [immune checkpoint inhibitor] treatment, particularly in those with pre-existing cardiovascular disease,” wrote the researchers.

Click here to read the study abstract in the Journal of Clinical Oncology.

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