ACCELERATED ATHEROSCLEROSIS AND INCREASED CARDIOVASCULAR DISEASE RISK IN IMMUNE CHECKPOINT INHIBITOR USE

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Introduction: Atherosclerosis, a chronic inflammatory disease with a significant immune component, involves the interplay of various immune cells and cytokines. Immune checkpoint inhibitors (ICIs), used in cancer treatment, can modulate the immune response and potentially impact atherosclerosis. While preclinical studies suggest ICIs might accelerate atherosclerosis, clinical evidence remains conflicting.

Methods: This retrospective study utilized the TriNetX research platform to analyze electronic medical records. Adult patients diagnosed with malignant neoplasms between 2019 and 2020 were categorized into ICI and non-ICI groups. Propensity matching was employed to balance baseline characteristics. The primary outcome was the incidence of first-time acute myocardial infarction (MI) and stroke. Secondary outcomes included the impact of cardiovascular medications and glucocorticoids on cardiovascular events.

Results: The ICI group exhibited a higher risk of first-time acute MI and stroke compared to the non-ICI group. This increased risk was observed as early as two weeks after ICI initiation and persisted for up to three years. ICI patients also experienced higher rates of cardiac arrest and poorer survival after cardiovascular events. Notably, the ICI group demonstrated lower LDL cholesterol, systolic blood pressure, and diastolic blood pressure but higher HbA1c levels compared to the non-ICI group at week 4. Traditional cardiovascular medications did not significantly reduce the risk of acute cardiovascular events in ICI patients.

Discussion: This study confirms an increased risk of acute cardiovascular events in patients receiving ICIs, independent of traditional cardiovascular risk factors. Elevated CRP levels were observed in ICI patients experiencing cardiovascular events, suggesting an inflammatory link. The study underscores the importance of thorough cardiovascular risk assessment and potential screening for subclinical atherosclerosis prior to ICI therapy. Risk reduction strategies may include cholesterol-lowering therapies and medications with anti-inflammatory properties. Limitations include the lack of patient-level data and potential selection bias. Further research is needed to elucidate the mechanisms underlying ICI-associated cardiovascular events and develop targeted preventive strategies.