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Viral infections lead to an increase in risk for heart attacks

In a recent study, researchers demonstrated that patients are far more likely to have a myocardial infarction (MI) within 7 days of a viral infection than prior to the infection (≤65yo - 2.4x increased risk, >65yo - 7.3x increased risk; Kwong et al, *NEJM*, 2018; 378:345-353). The increase in MI rate is thought to be driven by the increase in vascular inflammation and risk of plaque rupture due to respiratory viral infection.

What does this mean for patients with a viral infection?

It is recognized that patients with evidence of vulnerable plaque have an increased risk of MI. Pacifying vulnerable plaque decreases the risk of cardiovascular events including MI and stroke. It is likely that patients who develop viral respiratory infection in the presence of vulnerable plaque are less likely to heal their inflamed plaque, and progress to MI.

Who is at increased risk?

Identifying those patients who do or do not have increased vulnerable plaque and poor nitric oxide bioavailability offers an opportunity to remotely identify:

- Patients who we can reassure that their vascular disease is well controlled and quiesced.
- Patients who may need our attention to decrease their anxiety and stress, attend to their blood pressure or their stress eating, all of which can drive vascular inflammation and risk.

What can I do as a clinician?

An important strategy to define those patients at increased risk for a cardiovascular event with viral respiratory infection is to identify those patients who have vulnerable plaque.

Conversely, identifying those patients prior to getting a viral respiratory infection and passivating or stabilizing that plaque may be a way to improve overall outcomes of those patients who get infected.

How can clinicians incorporate this into patient care?

A biomarker assessment of Myeloperoxidase (MPO), Lp-PLA2 Activity, and Asymmetric dimethylarginine (ADMA) offers the ability to define the current vascular inflammation of a given patient and identify those who may benefit from further near-term risk factor modification.

"In these unprecedented times, patients, especially the elderly and those with a history of coronary artery disease, are at particular risk of adverse outcomes with COVID-19.

There has been long-term recognition that viral infections may lead to an increase in risk for myocardial infarction (MI).

In fact, prior to the rapid and widespread measuring of flu virus, a flu outbreak was defined as an excess of MI in the elderly in a specific region."

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