

### Transcript Details

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## Cardiac Concerns & the COVID-19 Vaccines: What We Know So Far

Announcer:

Welcome to *VacciNation* on ReachMD, sponsored by Moderna. Here's Dr. Muthiah Vaduganathan.

Dr. Vaduganathan:

COVID-19 is traditionally considered a respiratory illness with attendant risks of ventilator requirements or adverse respiratory complications. However, COVID-19 has also been noted to increase risks of cardiovascular and systemic illness. For instance, there's been increased risk of thrombotic events such as deep vein thromboses and pulmonary embolism. COVID-19 intersects with the electrical system of the heart by increasing risks of arrhythmias such as supraventricular arrhythmias, and ventricular tachyarrhythmias. Furthermore, COVID-19 may exacerbate prior cardiovascular illnesses. For instance, patients with pre-existing heart failure have increased risk of COVID-19 adverse outcomes compared with otherwise healthy adults. So COVID-19 really does intersect at multiple levels of the cardiovascular system and does increase risk, especially in those with pre-existing cardiovascular illnesses.

The COVID-19 vaccines have now been administered to millions of adults worldwide, and their safety profile has now been well-established and is well-founded both in clinical trials, registries, and surveillance systems. In general, the adverse risk profile are mild and adverse side effects such as lymph node enlargement and elevations and temperatures have been identified. Certain cardiovascular side effects have also been identified, namely myocarditis has really captured the public eye. Myocarditis, or inflammation of the heart muscle, does occur in some proportion of patients, especially after the second dose of the mRNA vaccines. The exact mechanisms underlying this myocarditis risks associated with the vaccines is uncertain, but likely related to molecular mimicry and increased inflammatory pathways related to the vaccines. The risks, on average, are low on an absolute level, estimated at about 10 to 20 per million persons who were vaccinated. And the illness severity is mild in most cases. And the illness duration is also short in most cases. The myocarditis present very typically compared with other types of myocarditis. For instance, patients present with chest pain, they have abnormal EKGs, and elevated cardiac biomarkers such as troponins.

So most of the patients I see in routine clinical practice are older adults with established cardiovascular illnesses. And we know that those patients really face the highest risks of adverse outcomes and disease severity associated with COVID-19 illness. And so in those patients, the benefits of protection from the vaccine far outweigh any potential risks of either systemic or cardiovascular side effects associated with a vaccine.

In lower-risk persons, especially young persons without pre-existing chronic conditions or cardiovascular diseases, there may be a more balance in the benefits and risks associated with the vaccine. It has been determined in large-scale surveillance reports that while the absolute risks are still low, they appear to be higher in young adolescent men. And in those people, I think that shared decision-making is going to be important in communicating these risks upfront and being transparent as a medical community in conveying that these are potential, typically time-limited adverse effects associated with the vaccine, but that on a population level, we believe that the vaccine-related protection against adverse events including cardiovascular effects likely outweigh, in most individuals, those smaller risks associated with the vaccine.

Announcer:

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