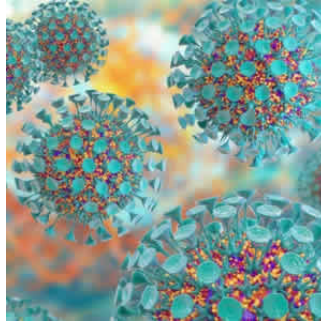


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## Influenza activity associated with an increase in hospitalisation for CV events



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In a recent study, surveillance data from 4 US communities was used to associate monthly influenza-like illness (ILI) activity as reported by the CDC with MI and HF hospitalisations. Influenza-like illness activity was associated with an increase in HF hospitalisations within the same month. Myocardial infarction was positively but not significantly associated with ILI activity, with the highest point estimate during the most severe influenza season. These data suggest that influenza is associated with the risk of CV hospitalisation.

The exact mechanism by which influenza infection leads to an increased risk for acute CV events is not understood, but several mechanisms likely contribute. Influenza increases metabolic demand and may exacerbate underlying cardiac conditions. Patients with HF have limited cardiac and respiratory reserves and are unlikely to tolerate infection-associated cardiac compromise. Infection-associated upregulated sympathetic nervous system activity may worsen HF, and infection concurrent with renal dysfunction may lead to volume overload. Proinflammatory cytokine level elevations during infection may precipitate plaque rupture and be associated with myocardial depression.

The results of the study are consistent with prior reports of increased admission rates for congestive HF during the influenza season and studies that have temporally associated acute CV events with influenza infection. In one study, investigators explored the effect of influenza on the risk of all-cause hospitalisation among patients from 2 randomised, placebo-controlled trials among individuals with HF and found that the overall hospitalisation rate was higher during the influenza season compared with noninfluenza seasons. However, another Canadian study that examined the association of CDC-reported influenza with HF hospital admissions did not detect significant associations between influenza and hospital admissions for HF among those older than 65 years. This study corroborates prior reports of an association between influenza and HF hospitalisations and elucidates the temporal association between these events.

Results did not show an increased risk of MI following respiratory or influenza infection as previously reported. Two studies that examined the risk and timing of MI following acute infection found that MI risk was increased in the week after infection, but the association tapered over time. Therefore, it may not be possible to discern an association that occurs within a shorter time frame using event counts that were aggregated at the month level.

The study showed an overall increased risk of HF associated with ILI activity throughout the 4 seasons studied. These data suggest that while hospitalisations for influenza and pneumonia, and deaths associated with these, are greatest during severe influenza seasons, acute CV events are also likely increased during periods of peak influenza activity. These data have implications for surveillance strategies aimed at identifying influenza as a cause of hospitalisation in high-risk CV patients and vaccination strategies to mitigate this risk.

Influenza vaccination is the most cost-effective way to attenuate the risk of influenza-associated cardiovascular events and has been shown in meta-analyses to reduce acute CV events. Currently, influenza vaccination is recommended by major guidelines in high-risk patients. The National Institutes of Health-supported INVESTED trial is testing whether a strategy using a high-dose formulation of the influenza vaccine, which may induce a more potent immune response, would reduce deaths or cardiopulmonary events more than the standard-dose vaccine.

Source: [JAMA](#)

Image Credit: iStock

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