

The Association of Influenza Infection and Vaccine With Myocardial Infarction: Systematic Review and Meta-Analysis of Self-Controlled Case Series

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Abstract

Introduction: Influenza vaccination may be beneficial in coronary disease patients; however the infection and vaccination are associated with acute inflammation, a trigger of cardiovascular events. We aimed to review the risk of myocardial infarction (MI) associated with Influenza infection and the safety of vaccination in self-controlled case series (SCCS). **Methods:** We performed a systematic review with meta-analysis of SCCS studies to evaluate the risk of MI associated with Influenza infection/vaccination. Database search was performed in August/2018. The data were reported using the incident rate ratio (IRR) and 95% confidence interval (95%CI). **Results:** three studies for Influenza infection and two studies for Influenza vaccination were eligible. The risk of MI following an Influenza infection was significantly increased in the first 3 days (IRR 5.79; 95%CI: 3.59-9.38) and between 4-7 days (IRR 4.52; 95%CI: 2.80-7.32). In the first 4 weeks following the Influenza vaccination, there was a significant decrease of MI risk (IRR 0.84, 95%CI: 0.78-0.91). **Conclusions:** Short-term MI risk in Influenza infection is significantly increased, with a low-to-moderate confidence in the pooled evidence. The Influenza vaccine was safe regarding the short-term risk for MI, and the risk reduction is possibly related to a healthy period bias.

Keywords: Influenza; Pneumonia; coronary artery disease; inflammation; ischemia; ischemic heart disease; respiratory infection; vaccine.