Flu jab associated with fewer hospitalisations in patients with heart failure

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The flu jab is associated with a reduced risk of hospitalisation in patients with heart failure, according to research presented today in a late breaking trial session at Heart Failure 2016 and the 3rd World Congress on Acute Heart Failure.

The study in about 60 000 patients ends the controversy over influenza vaccination in heart failure patients and provides more robust evidence for current recommendations.

Professor Kazem Rahimi, Deputy Director of The George Institute for Global Health, University of Oxford, UK, said: "Many guidelines recommend that elderly patients and those with co-morbidities including heart failure should have annual flu vaccinations to reduce the risk of adverse events."

"Uptake of the flu vaccination in heart failure patients is relatively low, ranging from less than 20% in low and middle income countries to 50-70% in high income countries like the UK," he continued. "This may partly be because there is no strong evidence to support the recommendation in these patients. In fact, there is limited evidence to suggest that vaccination may be less effective in heart failure patients than in the general population because of their blunted immune response."

More evidence has been needed on whether flu vaccinations could reduce adverse events in patients with heart failure. If a benefit was

found, this would confirm current recommendations by health policy makers and provide the impetus to improve uptake. If there was no benefit, it would suggest that those guidelines that make an explicit recommendation for use in heart failure should be reconsidered.

Conduct of a randomised controlled trial would have significant practical and in some respects ethical issues. The researchers therefore used patient records for the study.

Primary care and hospital records of 4.9 million adults from the UK Department of Health's Clinical Practice Research Datalink in 1990 to 2013 were used to assess the impact of flu vaccination on the risk of cause-specific hospitalisation in heart failure patients. The risk of hospitalisation for cardiovascular disease, respiratory disease, and all causes was compared between a year in which a patient was vaccinated and an adjacent year when they were not, excluding the peri-vaccination period to minimise the risk of confounding.

The investigators identified 59 202 heart failure patients in the database. Flu vaccination was associated with a 30% lower risk of hospitalisation for cardiovascular diseases, 16% lower risk of hospitalisation due to respiratory infections, and 4% lower risk of all-cause hospitalisation in the period 31 to 300 days after vaccination, compared with the corresponding period in an adjacent vaccination-free year.

"These findings do not suggest that influenza infection causes myocardial infarction or other cardiovascular events," said Professor Rahimi. "A more likely explanation for the reduction in risk of cardiovascular hospitalisation is that vaccination reduces the likelihood of an infection which could in turn trigger cardiovascular deterioration. The relative effect seems to be smaller for respiratory infections which may be due to fact that the vast majority of these hospitalisations are not related to influenza and in our study we were not able to distinguish

between the different types of respiratory infection."

The observed associations between vaccination and hospitalisations were largest 31 to 120 days after vaccination, and in younger patients (age less than 66 years). There were no differences between men and women. Professor Rahimi said: "People don't typically suffer from influenza infections in the summer so we expected the benefit to be largest in the early period after vaccination."

He added: "We also expected a stronger relationship in younger patients since we were looking at relative risks. Older patients have multiple triggers for a cardiovascular hospitalisation so the relative impact of influenza infection could become smaller. The absolute benefit, however, is probably larger in older patients because they are at greater risk of an admission to hospital."

The researchers validated the findings by looking at the association between vaccination and hospitalisation due to cancer, an uncorrelated outcome. As anticipated, there was no association, which supported the validity of the analysis.

Professor Rahimi said: "Despite the measures taken, we cannot entirely rule out the possibility of residual confounding explaining at least part of the observed association. But the findings do provide further evidence that there are likely worthwhile benefits and on that basis more efforts are needed to ensure that heart failure patients receive an annual flu jab ."

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