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Low vit C levels may increase risk for heart failure patients'

By Nathan Gray, 14-Nov-2011

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Heart failure patients with low vitamin C levels could be at higher risk of complications and may also have worse long term outcomes, according to a new research.

Speaking at the *American Heart Association's Scientific Sessions 2011*, the researchers reported on the study, which found low levels of vitamin C to be associated with higher levels of high sensitivity C-Reactive protein (hsCRP) and shorter intervals without major cardiac issues or death for heart failure patients.



The research team, led by Dr Eun Kyeong Song from the College of Medicine at the University of Ulsan in Korea, found that patients with the lowest vitamin C levels were 2.4 times more likely to have higher levels of hsCRP than those with the highest levels of the vitamin.

The authors added that study participants with low vitamin C intake and hsCRP over 3 milligrams per liter (mg/L) were nearly twice as likely to die from cardiovascular disease within one year of follow-up.

"We found that adequate intake of vitamin C was associated with longer survival in patients with heart failure," said Song.

"Increased levels of high-sensitivity C-reactive protein means a worsening of heart failure," he added. "An adequate level of vitamin C is associated with lower levels of high-sensitivity C-reactive protein. This results in a longer cardiac event-free survival in patients."

The authors added that the study is the first to demonstrate a link between low vitamin C status and reduced outcomes for heart failure patients.

Study details

Song and his colleagues examined the relationship between vitamin C intake and hsCRP in 212 heart failure patients using a four-day food diary verified by a registered dietitian – a software program then calculated vitamin C intake – and bloods tests to measure hsCRP. The researchers then divided participants into two groups; one with levels over 3 mg/L of hsCRP, and another with lower levels. The patients were followed for one year to determine the length of time to their first visit to the emergency department due to cardiac problems or death.

The researchers found that 39% (82 patients) had inadequate vitamin C intake, according to criteria set by the US Institute of Medicine. After a year follow-up, 29% (61 patients) had cardiac events, including visits to the emergency department or hospitalisation due to cardiac problems, or cardiac death. Song and his team reported that low vitamin C intake was associated with higher level of hsCRP.

"Low vitamin C intake [also] predicted shorter cardiac event-free survival after controlling for age, gender, body mass index, NYHA class, ejection fraction, comorbidities, total caloric intake and medications," they said.

Song added that further research, including randomised controlled trials and longitudinal prospective studies are needed to determine the impact of other micronutrients on survival or rehospitalisation of heart failure patients.

Source: *American Heart Association's Scientific Sessions 2011*
 Session Title: Issues in Heart Failure Management

Abstract 14667: Vitamin C Deficiency, High-Sensitivity C-Reactive Protein, and Cardiac Event-Free Survival in Patients with Heart Failure

Authors: E.K. Song, D.K. Moser, H. Payne-Emerson. S.B. Dunbar, S.J. Pressler,



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Keywords: vit c, heart failure, heart disease, heart health, vitamin C

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