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Clinical Latebreaker: Statins reduce hospital admission for heart failure

- **Clinically important 10 percent reduction in hospital admission for heart failure**
- **Benefit likely to be greater in the long-term**

Heart failure is costly, mainly due to frequent and prolonged admissions to hospital, and the condition is associated with a poor prognosis. Researchers from the University of Glasgow showed in a collaborative meta-analysis of 17 statin trials including over 100,000 patients, that statin treatment led to a 10 percent significant reduction in hospital admission for heart failure over an average of 4 years treatment.

Lead author, Dr David Preiss, Institute of Cardiovascular and Medical Sciences, University of Glasgow, UK said: *'Heart failure is disabling, expensive to treat, especially in more advanced stages, and patients have a poor outcome. While it has been assumed that statins reduce the development of heart failure simply because they reduce heart attacks, to our surprise this had not been definitively shown before. The results of this meta-analysis clearly show a modest, but significant benefit, reducing hospital admission for heart failure by 10 percent which is clinically important.'*

Heart failure develops when the heart is unable to maintain adequate blood flow to meet the needs of the body. Signs and symptoms including leg swelling, tiredness and shortness of breath, usually worse on exercise, can affect the patient's quality of life. The main cause is coronary artery disease. Typically, as the condition progresses, there are more frequent admissions to hospital and increasing costs associated with treatment. Currently, in the UK, heart failure affects 900,000 people and accounts for almost 2 percent of the National Health Service (NHS) budget. Approximately 5 percent of all emergency medical admissions to hospital are a result of heart failure but, with an aging population, this figure may increase by at least 50 percent over the next 25 years, emphasising the importance of prevention.^{1,2} The challenge facing all European healthcare systems is how to cope with the increasing cost of treating heart failure.³

Statins reduce the risk of heart attack in patients with and without pre-existing heart disease, and therefore in theory should have a beneficial effect on the development of heart failure, reducing the likelihood of hospital admission. However none of the previous

placebo-controlled statin trials had provided data to conclusively demonstrate a reduction in heart failure risk.

Researchers at the University of Glasgow collaborated with colleagues from Europe, USA and Asia to evaluate unpublished data from 132,568 subjects included in 17 statin trials, followed for an average of 4.3 years. The trials were conducted in patients with and without coronary disease, and each trial enrolled more than 1000 subjects followed-up for more than one year. Three end points were of interest: a first non-fatal hospital admission for heart failure, heart failure death and a composite of both endpoints.

The analysis showed:

- A 10 percent reduction in first heart failure hospital admission (relative risk 0.90, 95 percent confidence interval 0.84 to 0.97). Overall, 200 patients with heart disease would need to be treated over 5 years to prevent one hospital admission.
- An 8 percent reduction in the composite end point, which was driven by the effect of statin treatment on heart failure hospital admission (relative risk 0.92, 95 percent confidence interval 0.85 to 0.99).
- There were insufficient data to show that statin treatment could reduce heart failure death (relative risk 0.97, 95 percent confidence interval 0.80 to 1.17).

'The 10 percent reduction in hospital admission for heart failure could easily be an underestimate of the true effect, given that the trials were only 4 years duration on average, and the data only related to first heart failure events. With emerging data showing accrual of benefit from statins in the long-term, the 10 percent reduction is just the beginning of benefit from statin therapy. Additionally, if all heart failure admissions were taken into account, we suspect that the benefit would be much larger.' – Dr David Preiss

Intriguingly, the benefit of statins on heart failure hospital admission was not fully explained by a reduction in heart attacks. Notably, similar reductions in heart failure hospital admissions were observed regardless of whether patients experienced a heart attack or not before developing heart failure (13 and 9 percent reductions in risk, respectively). According to Dr Preiss: *'It is probable that statins decrease the degree of ischaemia that occurs before a heart attack, leading to a decrease in the number of people with other ischaemic events and reducing the chronic impact on the heart. However, an unrecognised pleiotropic effect cannot yet be excluded and further study of the potential mechanism(s) is needed.'*

The study will be reported at the EAS Congress, Glasgow Late breaking session I (15:00-16:30), and published simultaneously on 23 March, 2015 online in The European Heart Journal.

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For Editors:

The European Cardiovascular Disease Statistics. European Heart Network and European Society of Cardiology, September 2012. Link: <http://www.escardio.org/about/documents/eu-cardiovascular-disease-statistics-2012.pdf>

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