Abstract: P4147

Declining risk of heart failure hospitalisation following first acute myocardial infarction in Scotland between 1990-2015

Authors:
KF Docherty¹, AM Jackson¹, RT Campbell¹, RL Godeseth¹, MC Petrie¹, JJV McMurray¹, PS Jhund¹,
¹University of Glasgow, Institute of Cardiovascular and Medical Sciences - Glasgow - United Kingdom of Great Britain & Northern Ireland,

Topic(s):
Chronic Heart Failure – Epidemiology, Prognosis, Outcome

Citation:

Funding Acknowledgements:
This study was funded by an NHS Greater Glasgow and Clyde endowment fund award (GN17CA406)

Background

Mortality from acute myocardial infarction (AMI) has declined, increasing the pool of survivors at risk of later development of heart failure (HF). However, coronary reperfusion limits infarct size and secondary prevention therapy has improved. In light of these competing influences on risk of HF, we have examined long-term trends in incident HF hospitalisation (HFH) after AMI in a long-term, nationwide study with a single healthcare provider.

Purpose

To describe temporal trends in the risk of HFH following first AMI occurring in Scotland over a 26 year period.

Methods

All patients in Scotland discharged alive after a first AMI between 1990 and 2015 were followed until a first HFH or death until the end of 2016 (minimum follow-up 1 year, maximum 27 years). The cumulative incidence of HF was estimated at 1, 5 and 10 years following MI, accounting for the competing risk of death, with adjustment for comorbidities, age, sex and socioeconomic deprivation. In a sensitivity analysis, rates of HFH by AMI type (ST elevation MI [STEMI], non-STEMI and unknown ST type) were calculated for the period 2012 to 2015.

Results

A total of 184,826 people with no prior history of HF were discharged alive after a first AMI during the period of study. 23,414 (12.7%) had a first HFH during a median follow-up time of 6.8 years.

Accounting for the competing risk of death, the cumulative incidence of first HFH, at 1 year, fell between 1990 and 2015 from 5.0% to 2.9%; the 5 year risk fell from 10.4% to 5.8%; 10 year risk from 14.8% to 9.0% (Figure). The adjusted risk of HFH at 1 year after discharge fell by 55% (95%CI 49-60%). The adjusted 5 year risk of HFH fell by 57% (95%CI 53-60%) and 10 year risk fell by 53% (95%CI 50-57%). The adjusted risk of death after first MI fell at 1 year (44%); 5 years (37%); 10 years (34%); 31-36%.

The 10 year risk of HF following AMI was higher in older individuals (<55 years vs. =85 years HR 3.31; 95%CI 3.08-3.55), if there was HF complicating the index admission (HR 2.14; 95%CI 2.07-2.22), in
patients with diabetes (HR 1.77; 95%CI 1.70-1.84), renal disease (HR 1.40; 95%CI 1.32-1.49), atrial fibrillation (HR 1.37; 95%CI 1.31-1.43), and in those not undergoing coronary revascularisation within 30 days of AMI (HR 1.36; 95%CI 1.29-1.43). Similar results were seen at 1 and 5 years. In the sensitivity analysis 2012-2015, the overall rate of HF following STEMI, non-STEMI, and unknown MI type was similar (4.0%, 6.5% and 6.7% respectively).

Conclusion

Despite an increasing pool of survivors of AMI at risk of HF, the incidence of HF hospitalisation following AMI in Scotland has consistently decreased since 1990. This is despite changes in the treatment and definition of AMI. These trends suggest that better treatment of MI and secondary prevention are having an impact on the risk of HF at a population level.