

Assessment of morbidity and fatal outcomes of Acute Coronary Syndrome in Scotland

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Objectives

There have been a number of key changes in the clinical definition and diagnostic threshold of acute coronary syndromes in the last 10 years. We have characterised temporal and geographic changes in the incidence and outcomes following Acute Coronary Syndrome (ACS: Unstable Angina (UA), Non ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI)) between 2009 and 2013.

Approach

65,137 hospital stays were identified involving ACS (ICD-10: I20.0, I21 and I22) relating to 55,369 individuals identified through secondary care primary diagnosis records during 2009-2013. All prior and subsequent secondary care diagnoses from 1981-2014 were sourced for these patients and records were deterministically matched on a pseudo patient identifier to obtain the cause and date of death for purposes of follow-up. An incident ACS case was defined as such if the patient had not suffered an ACS in the five years prior to the hospital admission and all co-morbidities were derived from hospital diagnostic codes accompanying the ACS codes.

Results

For the entire cohort, patients with an incident ACS were predominantly male (61.5%) with mean age 68 (SD=13.7 years). Co-morbidities included: 65.5% Other Ischaemic Heart Disease; 5.2% Stroke; 7.5% Peripheral Artery Disease; 14.8% Atrial Fibrillation; 42.0% Hypertension; 18.0% Diabetes Mellitus and 8.4% Chronic Kidney Disease.

The overall incidence of ACS in 2009 was 204/100,000 and fell by 8.1% to 188/100,000 in 2013. Subtypes of ACS comprised 9.4% UA, 50.9% NSTEMI, 29.0% STEMI and 10.8% MI

unspecified in 2013.

In-hospital mortality following an incident ACS was 9.7% (95% CI: 9.2-10.3%) in 2009 and varied from 7.9 to 19.0% across the NHS boards. In 2013, in-hospital mortality was 8.5% (95% CI: 7.9-9.0%) ranging from 4.5 to 10.5% across the NHS boards. One-year mortality following an incident ACS in 2009 was 18.6% (95% CI: 17.9-19.4%) falling to 16.8% (95% CI: 16.1-17.5%) in 2013. Stratified by NHS board, the one-year mortality rate in 2009 varied from 16.9 to 28.0% and in 2013 ranged from 11.9 to 20.0% across the NHS boards.

Conclusion

These findings highlight the importance of a cohort based record linkage approach to routine healthcare datasets. While there appears to be changes in incidence of ACS and its subtypes and changes in mortality over time, these findings reflect significant changes in clinical practice with respect to definition and diagnosis. Cautious interpretation is needed combined with further research to fully understand the epidemiological implications of our findings.

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