Incidence of Acute Coronary Syndrome in the General Medicare Population, 1992 to 2009: A Real-World Perspective

We examined temporal trends in the incidence of acute coronary syndrome (ACS) among US Medicare beneficiaries.

Methods | We searched the 5% Medicare database (about 1.8 million patients per cohort year) to identify patients hospitalized with ACS from 1992 to 2009. Our cohort included Medicare patients at least 65 years old continuously enrolled with Parts A and B coverage and not enrolled in a health maintenance organization, excluding those with end-stage renal disease. We included claims for the following diagnostic codes (International Classification of Diseases, Ninth Revision, Clinical Modification): 410 (excluding 410.x2), acute myocardial infarction (AMI); and 411, unstable angina. Incidence was defined as the percentage of patients with at least 1 ACS inpatient claim in each cohort year.

Results | Between 1992 and 2009, the proportion of patients aged 65 to 74 years decreased from 56% to 50%, while the proportion older than 84 years increased from 11% to 15%. However, the proportions of women (60% to 58%) and white patients (88% to 87%) remained relatively constant. The annual unadjusted incidence of ACS was about 2.4% to 2.5% until 2002 and then steadily declined to about 1.7% in 2009 (Figure, A). The incidence of unstable angina steadily declined (from 1.5% in 1997 to 0.6% in 2009; Figure, B), but that of AMI remained constant, about 1.2% to 1.4%, throughout the study period (Figure, C). This trend was similar for all age, sex, and race groups except patients older than 84 years, in whom the ACS incidence initially increased, from 2.8% in 1992 to 3.4% in 2002, and then declined to 2.6% by 2009.

Discussion | Trends in AMI incidence have been studied in various populations. Yeh et al1 evaluated a community-based cohort of patients with AMI, who demonstrated a marked reduction in incidence, adjusted for age and sex, from 2000 to 2008 from 274 to 208 cases per 100,000 patient-years, which was driven by a decreased incidence of ST-segment elevation myocardial infarction. Using data from the National Health Service in England, Smolina et al3 reported a decrease in age-standardized AMI rates from 2002 to 2010 by about 33% in men.
and 31% in women. In contrast, Wong et al,\textsuperscript{3} evaluating national data from Australia, reported an increase in age- and sex-adjusted incidence from 1993 to 2010 from 215 to 251 cases per 100,000 person-years.

Our Medicare population differs significantly from the US community-based sample evaluated by Yeh et al\textsuperscript{1} owing to higher proportions of older and female patients. Moreover, unlike other investigators studying Medicare patients (eg, Chen et al\textsuperscript{4} and Wang et al\textsuperscript{5}), we determined the cumulative incidence of ACS, not just AMI, for nearly 2 decades. This study illustrates the disproportionate reduction in the incidence of unstable angina relative to AMI in the most recent decade. Our study is limited, however, by our use of administrative data, which are subject to appropriate coding, and our lack of clinical data.

In conclusion, the declining incidence of ACS from 2002 to 2009 demonstrates that improvement in cardiovascular outcomes extends to Medicare beneficiaries, probably reflecting better implementation of preventive strategies. This parallels a simultaneous reduction in US mortality rates associated with cardiovascular and coronary heart disease.\textsuperscript{6} However, our findings indicate that the AMI incidence among Medicare patients is higher than community-based estimates and has declined only modestly in nearly 2 decades, deserving additional attention. Importantly, the trend of declining ACS incidence was driven primarily by a reduction in unstable angina diagnoses, probably reflecting more frequent diagnosis of AMI relative to unstable angina due to expanded use of more sensitive cardiac biomarkers and changing definitions of AMI. These observations have important clinical and economic implications for this vulnerable patient population.

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Baseline Adherence to the Mediterranean Diet and Major Cardiovascular Events: Prevención con Dieta Mediterránea Trial

Lifestyle modification, particularly dietary changes, is the cornerstone of population-based strategies for cardiovascular disease (CVD) prevention.\textsuperscript{7} Recently the Prevención con Dieta Mediterránea (PREDIMED) study,\textsuperscript{2} a 5-year randomized primary prevention trial (isrctn.org Identifier: ISRCTN35799639), showed a 30% reduction in incident CVD with Mediterranean diet (MeDiet) intervention in comparison with a control diet. At quarterly visits throughout the study, a validated 14-item MeDiet screening tool (Table 1) was used to assess conformity with this dietary pattern.\textsuperscript{3}

Close monitoring of adherence to dietary instructions for CVD prevention is difficult in the clinical setting. Short dietary assessment tools, such as the PREDIMED screener, are desirable to identify individuals in need of dietary counseling. Given that there is little information on the association of diet scores with disease outcomes in longitudinal studies, we investigated whether the baseline 14-point MeDiet score was related to incident CVD in the PREDIMED cohort.

Methods | Design. The PREDIMED study is a large randomized trial testing the effect of 2 MedDiets (supplemented with either extra-virgin olive oil or nuts) compared with a control diet (advice on a low-fat diet) on incident CVD in individuals at high risk for but no CVD diagnosed at enrollment. The trial’s design, objectives, and methods have been described.\textsuperscript{2} Participants included 7447 men and women (mean age, 67 years) with either diabetes mellitus or 3 or more cardiovascular risk factors. The primary end point was an aggregate of myocardial infarction, stroke, or cardiovascular death. This study was approved by the institutional review board of Hospital Clinic, Barcelona, Spain. Written informed consent was obtained from all participants.

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