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Adherence to agents acting on the renin-angiotensin system in secondary prevention of non-fatal myocardial infarction: a self-controlled case-series study

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Abstract

Aims in accordance with current guidelines patients discharged after acute myocardial infarction (AMI) are usually prescribed agents acting on the renin-angiotensin system **(**ACE-I/ARB). However, adherence to prescribing medications is a recognized problem and most studies demonstrating the value of adherence were limited by their non-randomized design and by "healthy adherer" bias. Herein we sought to evaluate the relationship between adherence to ACE-I/ARB and risk of subsequent AMIs, by using the self-controlled case series (SCCS) design which virtually eliminates interpersonal confounding, being based on intrapersonal comparisons.

Methods and Results we linked data from three longitudinal registries containing information about hospitalizations, drug prescriptions and vital status of all residents in an Italian region. From 30,089 patients hospitalized for AMI in the years 2009–2011, we enrolled the 978 with non fatal re-AMIs at days 31 to 365 after discharge, receiving at least one ACE-I/ARB prescription collected at any of the regional pharmacies. Using information on prescriptions, each individual's observation time was then divided into periods exposed or unexposed to ACE-I/ARB. The relative re-AMI incidence rate ratios (IRR) of ACE-I/ARB exposure were estimated by conditional Poisson regression. During drug-covered periods, the risk of AMI recurrence was about 20% lower, i.e.the IRR (rate of recurrent AMI in exposed versus unexposed periods) was 0.79 (95% CI 0.66 to 0.96, P=0.001). The benefit of ACE-I/ARB was confirmed also by sensitivity analyses considering only first recurrences, excluding cases with AMI within previous 3 years, or with long, not AMI, hospital re-admission.

Conclusions poor adherence to ACE-I/ARB prescription medication was associated with a 20% increased risk of recurrent AMI. This was consistent with previous research, but the SCSS study design, even if not randomized, eased previous concerns about healthy-adherer bias.