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Alirocumab Reduces Total Hospitalizations and Increases Days Alive and Out of Hospital in the ODYSSEY OUTCOMES Trial

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Abstract

Background:

In ODYSSEY OUTCOMES (Evaluation of Cardiovascular Outcomes After an Acute Coronary Syndrome During Treatment With Alirocumab), alirocumab was compared with placebo, added to high-intensity or maximum tolerated statin treatment after acute coronary syndrome in 18 924 patients. Alirocumab reduced first occurrence of the primary composite end point—coronary heart disease death, nonfatal myocardial infarction, fatal or nonfatal ischemic stroke, or hospitalization for unstable angina—as well as total nonfatal cardiovascular events and all-cause deaths. The present analysis determined whether alirocumab reduced total (first and subsequent) hospitalizations and death and increased days alive and out of hospital (DAOH) and percent DAOH in ODYSSEY OUTCOMES.

Methods and Results:

In prespecified analyses, hazard functions for total hospitalizations and death were jointly estimated by a semiparametric model, while in post hoc analyses, DAOH and percent DAOH were compared between treatment groups with Poisson regression and one-inflated beta regression, respectively. With 16 629 total hospitalizations and 726 deaths, 331 fewer hospitalizations, and 58 fewer deaths were observed with alirocumab compared with placebo, translating to 15.6 total hospitalizations or deaths avoided with alirocumab per 1000 patient-years of assigned treatment. Alirocumab reduced total hospitalizations (hazard ratio, 0.96 [95% CI, 0.92–1.00]; $P=0.04$) and increased DAOH relative to placebo (rate ratio, 1.003 [95% CI, 1.000–1.007]; $P=0.05$), primarily through a reduction in days dead (rate ratio, 0.847 [95% CI, 0.728–0.986]; $P=0.03$). Patients randomized to alirocumab were also more likely to survive to the end of the study without hospitalization (odds ratio, 1.06 [95% CI, 1.00–1.13]; $P=0.03$).

Conclusions:

Alirocumab reduced total hospitalizations with corresponding small increases in DAOH and percent DAOH. These outcomes provide alternative patient-centered metrics to capture the totality of alirocumab clinical efficacy after acute coronary syndrome.

Clinical Trial Registration:

URL: <http://www.clinicaltrials.gov>. Unique identifier: NCT01663402.

Footnotes

*A complete list of the ODYSSEY OUTCOMES Committee members, investigators, and contributors is provided in the Data Supplement.

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The Data Supplement is available at <https://www.ahajournals.org/doi/suppl/10.1161/CIRCOUTCOMES.119.005858>.

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