Table 1. Study Population of EUROASPIRE III and IV

Survey	Period	Patients, n	Women, n (%)	Age, y, Mean ± SD
EUROASPIRE III	2007-2008	1985	1194 (60)	58 ± 10
EUROASPIRE IV	2014-2015	1842	1002 (54)	59 ± 12

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Figure 1. Prevalence of Overweight

Bulgaria	Croatia	Poland	Romania	UK	Overall	P Value
−5.2%	−6.15%	+1.9%	+10.7%	−2.8%	−0.7%	.85
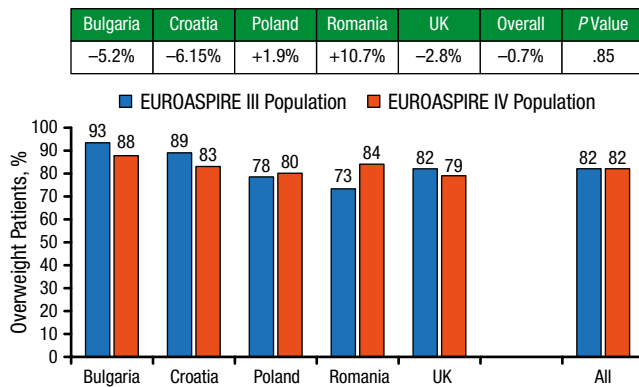
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Figure 2. Prevalence of Regular Vigorous Physical Activity[a]

Bulgaria	Croatia	Poland	Romania	UK	Overall	P Value
−11.6%	+2.2%	−1.5%	+17.1%	+1.7%	+1.9%	.68
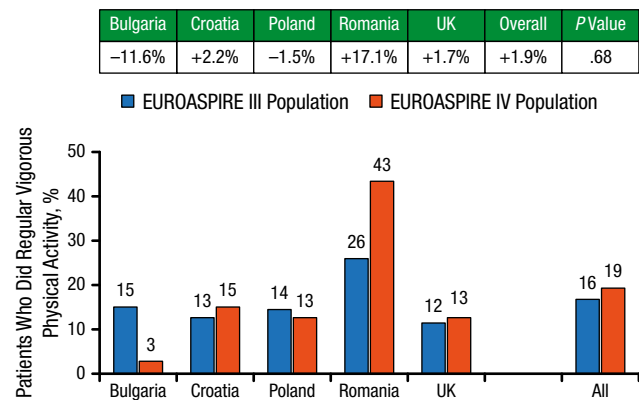
[a]Vigorous physical activity defined as physical activity outdoors for ≥20 min ≥3 times a week.
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VISION Findings: Preoperative Statin Use Linked With Lower 30-Day Risk of Major Cardiovascular Events

Written by Brian Hoyle

Data from the prospective, international, cohort VISION study [Berwanger O et al. *Eur Heart J.* 2015] of patients undergoing noncardiac surgery have indicated the value of preoperative statin use to lessen cardiovascular (CV) complications, according to Otavio Berwanger, MD, Research Institute-Cardiac Hospital, São Paulo, Brazil.

Of the estimated 200 million adults worldwide who receive noncardiac surgery every year, ≥10 million experience CV complications within 30 days. Observational data and findings of small randomized controlled trials have implicated statin use before surgery in the reduced risk of such CV events. More robust data are needed, and the paucity of data was the impetus for the VISION study.

VISION was a 12-center, 8-country observational study. Consecutive patients ≥45 years old undergoing noncardiac surgery at the participating centers were enrolled. The total enrollment of over 40 000 yielded a cohort that was a representative sample of patients undergoing noncardiac surgery. Early findings from the first 15 478 patients linked postoperative elevated troponin with 30-day mortality in the patient population [Devereaux PJ et al. *JAMA* 2012].

Data from 7337 patients—2845 who received statin preoperatively and 4492 who did not—were presented. Baseline characteristics between the 2 groups were similar in the propensity-matched population, with the exception of slightly higher prevalence of coronary artery disease, peripheral vascular disease, diabetes, and the preoperative use of aspirin and angiotensin-converting enzyme/angiotensin II receptor blocker inhibitors among statin users.

The prevalence of urgent (2.2%), emergent (8%), orthopedic (about 26%), and low-risk (36%) surgery was similar between the 2 groups.

The primary outcome was all-cause mortality, myocardial injury after noncardiac surgery, or stroke at 30 days. Secondary outcomes included peak troponin related to myocardial ischemia, myocardial infarction, CV and non-CV death, and stroke. Subgroup analyses assessed the effects of statin on CV events at 30 days.

After propensity matching, preoperative use of statin was associated with a significantly lower risk at 30 days of the primary outcome (RR, 0.83; 95% CI, 0.73 to 0.95; $P = .007$). Secondary outcomes were also significantly lower with statin use, including all-cause mortality (RR, 0.58; 95% CI, 0.40 to 0.83; $P = .003$) and cardiovascular mortality (RR, 0.42; 95% CI, 0.23 to 0.76; $P = .004$).

The matched statin group had a lower risk of the primary outcome (RR, 0.82; 95% CI, 0.68 to 0.98). Survival at 30 days was also significantly greater in matched patients preoperatively treated with statins (HR, 0.57; 95% CI, 0.47 to 0.69; $P = .004$). Subgroup analyses revealed a potential preferential benefit of preoperative statin use in 1973 patients with diabetes relative to 5364 patients

without diabetes (RR, 0.71; 95% CI, 0.56 to 0.91 vs RR, 0.92; 95% CI, 0.77 to 1.09; $P_{interaction} = .04$).

Limitations of VISION included its observational design (statin use clearly might be a surrogate for another confounder related to 30-day outcome when the associated risk for survival is substantially lower than the primary outcome), the presence of some baseline differences, and the lack of data on statin type/dose, liver function, and muscle function.

Nonetheless, the data from this large cohort of patients undergoing noncardiac surgery indicate the potential value of statin use before surgery in lessening CV complications 30 days postoperatively. Dr Berwanger noted that these findings need to be confirmed in large perioperative randomized controlled trials.

Low Adherence/Discontinuation of Statin Therapy Is Common and Detrimental in MI Patients

Written by Brian Hoyle

Examination of hospital records of over 45 000 Medicare beneficiaries aged ≥66 years has revealed that high adherence to statin therapy, regardless of statin intensity, is beneficial following discharge after hospitalization for myocardial infarction (MI). Yet, low adherence to therapy or discontinuation is common.

The researchers, including Robert S. Rosenson, MD, Mount Sinai Icahn School of Medicine, New York City, New York, USA, and Paul Muntner, PhD, University of Alabama Birmingham, Birmingham, Alabama, USA recently reported that only 27% of 8762 randomly sampled Medicare beneficiaries hospitalized for coronary heart disease events received high-intensity statins [Rosenson RS et al. *J Am Coll Cardiol.* 2015]. The present study was undertaken as a further exploration of the finding.

The study initially enrolled 969 040 Medicare beneficiaries aged ≥66 years and <110 years who were hospitalized at the aforementioned institutions for MI between 2006 and 2012. This initial population was whittled down to 45 629 individuals whose first statin prescription following discharge was for a high-intensity statin (atorvastatin, 40 or 80 mg; rosuvastatin, 20 or 40 mg; or simvastatin, 80 mg). The pattern of statin use at 182 days following discharge was ascertained, with maintenance of therapy for ≥80% of the time deemed high adherence and <80% of the time reflecting low adherence. Other patterns analyzed included down-titration and subsequent high adherence to moderate- or low-intensity statins; low adherence to high-, moderate-, or low-intensity statins; and complete discontinuation of statin therapy (>60 days with no statin supply and no prescription refills).

Outcomes included recurrent MI, hospitalization for cardiovascular diseases (CVD) and non-CVD, and all-cause mortality beginning 182 days after discharge and ending on December 31, 2012.

The majority of the 45 629 individuals displayed high adherence to high-intensity statin therapy at 182 days (57.4%), followed by those whose adherence was low (18.8%), those who discontinued therapy (14.1%), and those with high adherence to a down-titrated regimen (9.7%). These groups were similar in age (mean age, 76 years), sex (female, 53%), and race (white, >80%).

Similarities extended to the prevalence of diabetes (44.6%, 49.4%, 45.7%, and 43.3% in the same respective order) and a history of coronary heart disease (58.7%, 64.7%, 59.1%, and 54.8% in the same respective order).

Recurrent MI within 182 days following hospital discharge occurred in 1324 (5.1%) patients with high adherence to high-intensity statins, 334 (7.5%) patients with high adherence to low- or moderate-intensity statins, 796 (9.3%) patients with low adherence to statins, and 484 (7.6%) patients who discontinued statins.

Patients with high adherence to either high-intensity statins or low-/moderate-intensity statins experienced fewer MI recurrences, fewer CVD-related hospitalizations, and fewer all-cause mortalitites. The pattern was less clear for non-CVD hospitalization but still favored high-adherent individuals.

Analyses of results adjusting for calendar year, age, race/ethnicity, and sex and for these parameters plus a battery of factors concerning patient care and history of comorbidities confirmed the lower occurrence of recurrent MI, CVD hospitalization, non-CVD hospitalization, and all-cause mortality in individuals with high adherence, be that to low-, moderate-, or high-intensity statins. Individuals whose adherence was low or who discontinued statin use had worse outcomes.

Thus, down-titration and discontinuation of high-intensity statins are both common and detrimental.

SUPPORT Findings: Smartphone App Bolsters Drug Adherence and Beneficial Lifestyle Changes in Myocardial Infarction Patients

Written by Brian Hoyle

A smartphone app that provides interactive feedback in response to patient input can be beneficial in