

Original Investigation

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ONLINE FIRST

Association of Statin Therapy Initiation With Diabetes Progression A Retrospective Matched-Cohort Study

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Key Points

Question What is the association of statin treatment initiation and diabetes progression in patients with diabetes?

Findings This large retrospective cohort study included 83 022 propensity-scored matched pairs of statin users and nonusers and found that the diabetes-progression composite outcome was significantly higher among patients with diabetes who used statins than among patients with diabetes who did not use statins. The study examined 12 years of data on patients covered by the Veterans Affairs health system and new-user and active-comparator designs to assess associations between statin initiation and diabetes progression from 2003 to 2015.

Meaning Statin use was associated with diabetes progression in patients with diabetes—statin users had a higher likelihood of insulin treatment initiation, developing significant hyperglycemia, experiencing acute glycemic complications, and being prescribed an increased number of glucose-lowering medication classes.

Abstract

Importance Statin therapy has been associated with increased insulin resistance; however, its clinical implications for diabetes control among patients with diabetes is unknown.

Design, Setting, and Participants This was a retrospective matched-cohort study using new-user and active-comparator designs to assess associations between statin initiation and diabetes progression in a national cohort of patients covered by the US Department of Veterans Affairs from fiscal years 2003-2015. Patients included were 30 years or older; had been diagnosed with diabetes during the study period; and were regular users of the Veterans Affairs health system, with records of demographic information, clinical encounters, vital signs, laboratory data, and medication usage.

Interventions Treatment initiation with statins (statin users) or with H2-blockers or proton pump inhibitors (active comparators).

Main Outcomes and Measures Diabetes progression composite outcome comprised the following: new insulin initiation, increase in the number of glucose-lowering medication classes, incidence of 5 or more measurements of blood glucose of 200 mg/dL or greater, or a new diagnosis of ketoacidosis or uncontrolled diabetes.

Results From the 705774 eligible patients, we matched 83022 pairs of statin users and active comparators; the matched cohort had a mean (SD) age of 60.1 (11.6) years; 78712 (94.9%) were men; 1715 (2.1%) were American Indian/Pacific Islander/Alaska Native, 570 (0.8%) were Asian, 17890 (21.5%) were Black, and 56 633 (68.2%) were White individuals. Diabetes progression outcome occurred in 55.9% of statin users vs 48.0% of active comparators (odds ratio, 1.37; 95% CI, 1.35-1.40; *P*<.001). Each individual component of the composite outcome was significantly higher among statin users. Secondary analysis demonstrated a dose-response relationship with a higher intensity of low-density lipoprotein-cholesterol lowering associated with greater diabetes progression.

Conclusions and Relevance This retrospective matched-cohort study found that statin use was associated with diabetes progression, including greater likelihood of insulin treatment initiation, significant hyperglycemia, acute glycemic complications, and an increased number of prescriptions for glucose-lowering medication classes. The risk-benefit ratio of statin use in patients with diabetes should take into consideration its metabolic affects.



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Looking at the Whole Picture

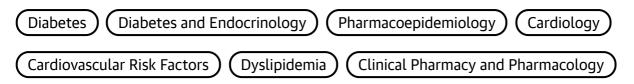
Marc Rendell, M.D. | The Rose Salter Medical Research Foundation and the Association of Diabetes Investigators

The use of statins has been associated with decreased cardiovascular mortality. Studies of overall mortality have been somewhat less conclusive (1), but a retrospective cohort study in the Veterans Administration population also using propensity scoring showed a hazard ratio favoring statin use of 0.75 (95% CI, 0.74-0.76) for all-cause mortality, and 0.80 (95% CI, 0.78-0.81) for cardiovascular mortality (2). The study by Mansi et al (3) suggests that statin use was associated with worsening events associated with diabetes. Certainly diabetes is a strong driver of increased mortality. It would be interesting for the authors to broaden their ...

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