LESS IS MORE

Statin Use in Very Elderly Individuals, 1999-2012

There is little randomized evidence to guide the use of statins (HMG-CoA reductase inhibitors) in very elderly individuals (>79 years).1,2 Despite this, the very elderly have the highest rate of statin use in the United States.3 Given that few studies have investigated the use of statins among this population in a longitudinal manner by vascular disease, we set out to do so.

Methods | The 1999-2012 Medical Expenditure Panel Survey (MEPS) was used for the analysis.4 The MEPS is nationally representative of the civilian noninstitutionalized population of the United States for each year and is sponsored by the Agency of Healthcare Research and Quality and the Centers for Disease Control and Prevention. The survey consists of 5 interviews over 2 years and contains self-reported demographics, medical conditions, and prescription drug information. The analysis included all individuals older than 79 years without liver disease. Prescription drug information was verified by pharmacy data and has been shown to be valid and not biased by sociodemographic variables.5 Statins were identified, and use was classified as the report of any statin prescription. Atorvastatin or rosuvastatin were considered high-potency statins. Primary prevention was defined as individuals without vascular disease (coronary heart disease [CHD], stroke, or peripheral vascular disease). Secondary prevention was defined as vascular disease, which increased in 2007 after questions regarding CHD and/or stroke were asked at every interview instead of once a year.

Logistic regression was used to investigate trends in medication use, while multivariable logistic regression was used to determine if high-potency statin use was associated with vascular disease controlling for year. A sensitivity analysis was conducted that included individuals with diabetes mellitus in the secondary prevention group. Complex survey weighting was included in all analyses, using STATA statistical software (version 13; STATA Corp). The Ohio State University institutional review board ruled this study exempt from review.

Results | The sample included 13 099 individuals from 1999 to 2012. The rates of vascular disease in the population increased from 27.6% (95% CI, 24.8%-30.5%) in 1999 to 2000 to 43.7% (95% CI, 41.2%-46.1%) in 2011 to 2012. Among the primary prevention population, the rate of statin use increased from 8.8% (95% CI, 6.3%-10.2%) in 1999 to 2000 to 34.1% (95% CI, 30.4%-38.1%) in 2011 to 2012 (P < .001). There was an increasing trend in statin use in both primary and secondary prevention (P < .001 for both comparisons) (Figure, A). High-potency statin use was not associated with vascular disease (odds ratio, 1.01 [95% CI, 0.83-1.22]). The proportion of statin users who used atorvastatin peaked in 2005 to 2006 and then steadily declined, while the proportion that were simvastatin users were steady until 2007 to 2008 when it started to rise. The percentage of statin users who used rosuvastatin steadily increased after its introduction (Figure, B).

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<th>Year</th>
<th>Percent of very elderly individuals (&gt;79 years) who reported a prescription for a statin from 1999 to 2012, by vascular disease.</th>
<th>Percent of very elderly individuals (&gt;79 years) who reported a prescription for a statin reported by specific statin type from 1999 to 2012.</th>
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The sensitivity analysis that included individuals with diabetes mellitus as secondary prevention did not alter the patterns seen in Figure, A), but there was a decrease in primary prevention use to 30.3% (95% CI, 26.4%-34.4%) in 2011 to 2012.

Discussion | One-third of community-dwelling very elderly individuals without vascular disease reported a statin prescription despite a lack of randomized clinical trials to support their use.1-2 Despite a lack of clear recommendation for statin use in the primary prevention of the very elderly within the Adult Treatment Panel III guideline,6 there was a large increase in use that coincided with its release. The primary limitation of our study is the change in the classification of vascular disease, which likely increased the sensitivity and decreased the specificity of vascular disease. Hence, the classification of primary prevention likely became more conservative. Although the medical community has embraced the use of statins for primary prevention in the very elderly, caution should be exercised given the potential dangers of expanding marginally effective treatments to untested populations.

Michael E. Johansen, MD, MS
Lee A. Green, MD, MPH

Author Affiliations: Department of Family Medicine, College of Medicine, The Ohio State University, Columbus (Johansen); Department of Family Medicine, The University of Alberta, Edmonton, Alberta, Canada (Green).

Corresponding Author: Michael E. Johansen, MD, MS, Department of Family Medicine, The Ohio State University, 2231 N High St, Columbus, OH 43201 (Michael.Johansen@osumc.edu).


Author Contributions: Dr Johansen had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Johansen.

Acquisition, analysis, or interpretation of data: Both authors.

Drafting of the manuscript: Johansen.

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