Statins Reduce Fracture Risk in Elderly Male Veterans


Study Overview

Objective. To assess the relationship between statins and risk of fractures in elderly, predominantly male veterans.

Design. Retrospective cohort study.

Setting and participants. The study population was created from a database that contained all health care encounters and services for patients who received care in the New England Veterans Affairs (VA) health care system between 1 January 1998 and 30 June 2001. Three groups were assessed: those who received more than 1 prescription for statins (ie, atorvastatin, cerivastatin, fluvarstatin, lovastatin, pravastatin, or simvastatin), those who received more than 1 prescription for nonstatin lipid-lowering agents (ie, cholestyramine, clofibrate, colestipol, fenofibrate, gemfibrozil, niacin, or niacinamide), and those not taking lipid-lowering therapy.

Main outcome measure. ICD-9 diagnosis of fracture in inpatient or outpatient records.

Main results. Of 91,052 patients, 28,063 were prescribed statins and 2195 were prescribed nonstatin lipid-lowering medications. In the adjusted analyses, statin use was associated with a 36% (odds ratio, 0.64 [95% confidence interval, 0.58–0.72]) reduction in fracture risk when compared with no lipid-lowering therapy and a 32% (odds ratio, 0.67 [95% confidence interval, 0.50–0.91]) reduction when compared with nonstatin lipid-lowering therapy.

Conclusion. There was a significant reduction in fractures among statin users in a population of elderly male veterans.

Commentary

Injuries from falls are the leading cause of injury-related deaths and disabilities among persons aged 65 years or older. The most serious fall-related injury is hip fracture; half of all older adults hospitalized for hip fracture never regain their former level of function [1]. The care of fractures, especially hip fractures, in elderly patients is expensive. The cost for the management of osteoporosis, the number one risk factor for hip fracture, has been estimated at more than $17 billion, the majority of which is spent on acute surgical and medical management following hip fracture and the subsequent rehabilitation after hip fracture [2,3]. Little of this is spent on prevention and treatment of osteoporosis.

Scranton and colleagues studied the effect of statins on fracture risk in elderly males and reviewed several plausible biologic mechanisms that may support a risk reduction, including that statins have potential anti-inflammatory effects and improve small vessel function to bones, which may promote bone growth and remodeling. The authors used an observational retrospective cohort design to examine the incidence rates of fractures and found a lower incidence of fractures in those who used statins compared with patients who used nonstatin lipid-lowering agents or no lipid-lowering agents (7 versus 11.3 versus 12.2 per 1000 person-years, respectively).

One of the limitations of this study is that due to formulary restrictions at the VA, there was insufficient power to detect differences between each statin. There is evidence from epidemiologic studies that statins may reduce fractures; however, this continues to be debated because randomized controlled trials have not shown an association between reduced fracture risk and statin use, which raises concerns for residual confounding in epidemiologic studies or misclassification. Therefore, caution is warranted in interpreting the results of these observational studies.

Applications for Clinical Practice

Currently, statins are widely used to lower lipid levels and for cardiovascular disease risk reduction. More clinical trials are needed before statins can be recommended for fracture reduction.

References

