

Statin Prescription and Dose Intensity Among Elderly Medicare Beneficiaries, by Cardiovascular Disease Diagnosis and Prescriber Specialty

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Introduction

- Hypercholesterolemia is a major risk factor for coronary heart disease.
- Statins have been extensively used to treat patients with hypercholesterolemia.
- Statin use is known to benefit elderly patients with cardiovascular disease.
- Several studies have examined the rate of statin use in everyday practice.
- However, little is known about the rate and doses of statin prescriptions among elderly Medicare beneficiaries with a history of cardiovascular diseases.
- In addition, the relationship between prescriber specialty and statin use in this population has not been previously reported.

Methods

- Using 2007-2010 5% samples of Medicare Part A, Part B, and Part D claims, we identified beneficiaries with history of prevalent cardiovascular disease or diabetes.
- The study cohort consisted of beneficiaries continuously enrolled in Medicare Parts A, B, and D during 2009, not enrolled in an HMO, residing in the 50 US states or District of Columbia, and alive, without end-stage renal disease, and aged ≥ 65 years on January 1, 2009.
- We used a disease hierarchy approach and included 9 subgroups: patients with history of myocardial infarction (MI), unstable angina, ischemic stroke, stable angina, transient ischemic attack (TIA), carotid stenosis, coronary revascularization (PCI/CAB), peripheral arterial disease (PAD), or diabetes mellitus.
- We identified statin users at diagnosis or within 12 months post-diagnosis.
- We categorized statin therapy as high-, moderate-, or low-intensity (Table 1).
- We examined the proportion of patients prescribed statins by cardiologists vs. by other specialists.

Results

- The cohort included 613,674 enrollees who met the inclusion criteria. The mean age was 76.7 years (SD 7.6 years), 67.9% were female, and 85.5% were white.
- Statin use was highest among PCI/CAB patients (81.5%) and lowest among PAD patients (45.5%, Table 2).
- Similar proportions of patients with MI (72.8%) and unstable angina (71.4%) were prescribed statins.
- High-intensity and low-intensity statins were most commonly prescribed to MI patients (22%) and TIA patients (13.7%), respectively.
- Overall, family/internal medicine was the most common specialty of statin prescribers across all cardiovascular disease groups (Table 3).
- Cardiologists were most likely to prescribe statins to PCI/CAB patients (23.8%).
- Endocrinologists prescribed 2.3% of statins for patients with diabetes mellitus.
- Most PAD patients (62.9%) were prescribed statins by family/internal medicine clinicians.
- Overall, 41% of patients had at least one visit with a cardiologist in 2010.

Table 1. High-, moderate- and low-intensity statin therapy*

High intensity	Moderate intensity	Low intensity
Daily dose lowers LDL-C, on average, by approx. $\geq 50\%$	Daily dose lowers LDL-C, on average, by approx. 30% to $< 50\%$	Daily dose lowers LDL-C, on average, by $< 30\%$
Atorvastatin 40 or 80 mg	Atorvastatin 10 or 20 mg	Fluvastatin 20 or 40 mg
Rosuvastatin 20 or 40 mg	Fluvastatin 80 mg	Lovastatin 10 or 20 mg
Simvastatin 80 mg	Lovastatin 40 or 80 mg	Pitavastatin 1 mg
	Pitavastatin 2 or 4 mg	Pravastatin 10 or 20 mg
	Pravastatin 40 or 80 mg	Simvastatin 10 mg
	Rosuvastatin 5 or 10 mg	
	Simvastatin 20 or 40 mg	

*Adapted from the 2013 ACC/AHA guideline on the treatment of blood cholesterol

Table 2. Statin use and dosage intensity

Cardiovascular disease	N	On statin, %*	Statin intensity, %**		
			High	Moderate	Low
1. Myocardial infarction	21,823	72.8	22.0	68.1	9.9
2. Unstable angina and not 1	17,118	71.4	20.0	70.3	9.7
3. Ischemic stroke and not 1 and 2	24,182	59.2	15.4	71.8	12.7
4. Stable angina and not 1-3	21,527	64.8	18.2	71.0	10.8
5. TIA and not 1-4	16,591	51.9	13.8	72.5	13.7
6. Carotid stenosis and not 1-5	22,304	67.0	19.7	69.7	10.6
7. PCI/CAB and not 1-6	4433	81.5	19.5	71.5	9.0
8. PAD and not 1-7	66,809	45.5	14.5	72.8	12.8
9. Diabetes mellitus and not 1-8	112,109	57.3	14.9	72.8	12.3

*Proportion of elderly Medicare cohort with prevalent cardiovascular disease on statins at diagnosis or within 12 months post-diagnosis.

**Based on statin daily dosage at diagnosis or within 12 months post-diagnosis.

Table 3. Statin use and prescriber specialty

Cardiovascular disease	N	On statin, %*	Prescriber specialty, %		
			Cardiologist	Other specialty**	Other
1. Myocardial infarction	21,823	72.8	18.2	46.8	35.0
2. Unstable angina and not 1	17,118	71.4	18.8	47.9	33.3
3. Ischemic stroke and not 1 and 2	24,182	59.2	7.1	1.4	91.5
4. Stable angina and not 1-3	21,527	64.8	19.4	49.6	31.0
5. TIA and not 1-4	16,591	51.9	8.6	0.7	90.8
6. Carotid stenosis and not 1-5	22,304	67.0	14.9	57.5	27.6
7. PCI/CAB and not 1-6	4433	81.5	23.8	43.8	32.5
8. PAD and not 1-7	66,809	45.5	9.2	62.9	27.9
9. Diabetes mellitus and not 1-8	112,109	57.3	5.9	2.3	91.9

*Proportion of elderly Medicare cohort with prevalent cardiovascular disease on statins at diagnosis or within 12 months post-diagnosis.

**Other specialty was defined as neurologist for ischemic stroke and transient ischemic attack and endocrinologist for diabetes. For all other cardiovascular disease groups, it was defined as family medicine/internal medicine.

Conclusions

- Despite the benefits of statin treatment, the prevalence of statin use is lower among elderly PAD and TIA patients, relative to other cardiovascular disease groups.
- There appear to be differences in statin prescribing by physician specialty.
- These findings suggest a need for more comprehensive assessment of the determinants and outcomes of statin use in elderly patients with cardiovascular disease.

Limitations

- The retrospective claims data used for this analysis allow us to identify only prescription drugs dispensed in the outpatient setting. Thus, we could not identify prescriptions written during hospitalizations.
- Some Medicare Part D beneficiaries (those without low-income subsidy) encounter the coverage gap and may fill prescriptions outside the Part D system. We were unable to identify such prescriptions.



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