Statin Use and Dose by Low-Density Lipoprotein Cholesterol Level in a Commercially Insured Population of Secondary Prevention Patients

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INTRODUCTION

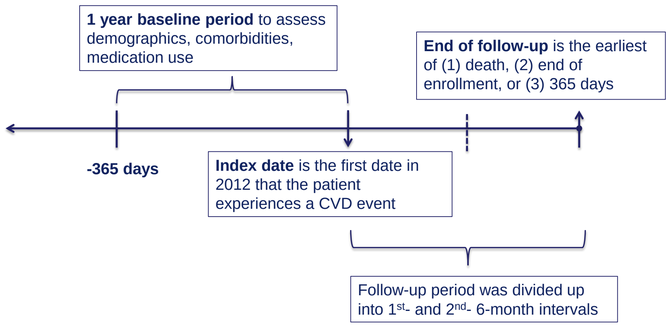
- Statin therapy reduces the risk of subsequent cardiovascular disease (CVD) events in secondary prevention patients
- Although LDL-C reduction has improved over the years with use of high-potency statins, between 70 to 80% of patients in certain high-risk groups (e.g. post-MI) do not reach recommended LDL-C targets.

OBJECTIVE

- To describe statin use by potency across LDL-C category following the occurrence of a CVD event

METHODS

Figure 1. Study Design Schema



Retrospective Cohort Design

- We used data from Optum Research Labs.
- Beneficiaries > 18 years of age with at least one year of continuous coverage.
- CVD events (index date) were identified as the first occurrence of MI, unstable angina, ischemic stroke, or a transient ischemic attack (TIA) (Figure 1).
- ICD-9 Codes used:
  - MI: 410.xx (excluding 410.x2)
  - Unstable angina: 411.1, 411.81, 411.89
  - TIA: 435.x
  - Ischemic stroke: 433.x1, 434.x1

METHODS (Continued)

- Patient characteristics, comorbidities, and lab values (including LDL-C levels) most proximal to the index date were identified during the 1 year baseline period.
- Statin use was identified using National Drug Codes and potencies classified according to the 2013 ACC/AHA guidelines.
- Patients were followed for statin use and titration in the first and second 6-month time periods following a CVD event in 2012.

RESULTS

Table 1. Baseline Demographic and Clinical Characteristics of Patients with Lab Values

N = 13,744	
Mean Age* (SD)	70.8 (12.3)
Age* (%)	
18-<65	30.3%
65-<75	27.1%
>=75	42.6%
Male sex (%)	50.3%
Geographic region	
Midwest	8.4%
Northeast	9.2%
South	60.0%
West	19.9%
Charlson Comorbidity Index	
<0	3.9%
1-3	75.0%
>=4	21.1%
Myocardial infarction	34.3%
Unstable angina	13.8%
Ischemic stroke	24.9%
Hemorrhagic stroke	1.9%
Cerebrovascular disease	22.0%
Transient ischemic stroke	32.4%
CABG/PCI	23.3%
Peripheral arterial disease	11.1%
Type 2 diabetes mellitus	38.6%
Hypertension	79.2%
Heart failure	24.4%
Venous thromboembolism	4.1%
Cancer***	11.1%
Chronic kidney disease (all stages)	28.8%

- Patients were, on average, 71 years old with ~70% of patients over 65 (Table 1)
- Over 20% of patients had a Charlson Comorbidity Score ≥4. Hypertension (79.2%), MI (34.3%), and TIA (32.4%) were most commonly observed (Table 1)
- Among 9,245 patients with at least 1 LDL-C lab during the baseline period, those with LDL-C 100 to <130 mg/dL were most likely to not fill a statin prescription (Figure 2).
- Approximately 30% and 48% of patients with baseline LDL-C ≥190 mg/dL did not fill a statin prescription in the first and second 6 months post-event, respectively (Figure 2).
- Across all LDL-C levels the majority of statin prescriptions filled were moderate potency, followed by high and low potency, respectively. (Figure 2).

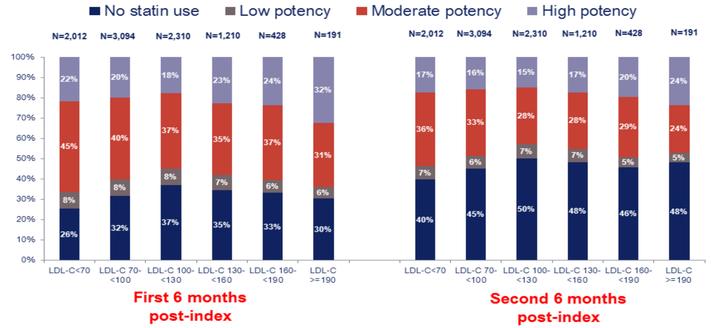
Notes: Lab subset defined as beneficiaries that have at least one measurement of any lab in the baseline period. The number of patients with an LDL-C lab during the baseline period is 9,245. *Mean age at index;***Excludes non-melanoma skin cancer.
CABG, coronary artery bypass grafting; PCI, percutaneous coronary intervention.

FUNDING

- This study was funded by an academic / industry collaboration between Amgen Inc., the University of Alabama at Birmingham and Mount Sinai School of Medicine.

RESULTS (Continued)

Figure 2. Statin Usage by LDL-C Levels in First and Second 6-month Periods Post Index



STRENGTHS & LIMITATIONS

Strengths

- Data cover a large sample of secondary prevention patients, allowing researchers to understand real-world treatment patterns among commercially insured beneficiaries.
- Follow-up time for up to 12 months allows for detailed investigation of use and titration patterns in relevant treatment intervals.

Limitations

- Results observed among the commercial population may not be generalizable to beneficiaries covered by federal or state insurance programs.
- ICD-9 codes may not accurately capture all CVD events.
- While prescription drug fills are captured, we do not know whether the drug was actually taken.

CONCLUSIONS

- Across all LDL-C levels and statin potencies, the proportion of patients decreased between the first and second six-month periods post-event, highlighting an important treatment gap.
- Despite evidence-based guidelines and widespread evidence of the efficacy of high potency statins in reducing the risk of CVD events in high risk patients, overall statin use and use of high potency statins remains suboptimal; treatment trends are especially concerning in those with very high LDL-C levels.