Real-World Changes in LDL-C among High-Risk Patients Switching from Atorvastatin to Rosuvastatin

Sandra J. Lewis, MD,1 Temitope Olufade, PhD,2 Deborah Anzalone, MD,2 Stephen S. Johnston, MA1

1Northwest Cardiovascular Institute, Portland, OR; 2AstraZeneca, Wilmington, DE; 3Truven Health Analytics, Bethesda, MD

Background
- According to well-accepted cholesterol treatment guidelines, patients at high risk for atherosclerotic cardiovascular disease (ASCVD) are likely to benefit from lowering low-density lipoprotein cholesterol (LDL-C) with high-intensity statins (atorvastatin [ATV] or rosuvastatin [RSV]).
- In an observational study conducted by Fox and colleagues, a 13.6% reduction in LDL-C was observed in a subanalysis of 67 patients who switched from ATV to RSV in clinical practice.1
- Although such studies provide evidence for the potential benefit of using RSV after ATV, there is currently no information regarding the magnitude of LDL-C reductions specifically among patients who are at high risk for ASCVD.

Objective
- To examine changes in LDL-C among patients at high risk for ASCVD who switch from ATV 40 mg or 80 mg to RSV 20 mg or 40 mg.

Methods

Study Design, Data Source, and Patient Selection Criteria
- This was a retrospective, observational cohort study based on US insurance claims data linked to laboratory result data contained in the Truven Health MarketScan Commercial, Medicare Supplemental, and Laboratory databases.
- These databases contain inpatient medical, outpatient medical, and outpatient pharmacy claims. Linked to laboratory result data and plan enrollment information for employees, dependents, and retirees with employer-sponsored primary or Medicare and supplemental health insurance.
- ASCVD was defined based on the 2013 ACC/AHA criteria for patients with a non-neurologic medical claim with an ICD-9-CM diagnosis code or procedure code for any of the following CV events during the 6-month pre-index period: acute coronary syndrome, history of coronary revascularization, history of myocardial infarction, stroke, or transient ischemic attack, peripheral artery revascularization, ischemic stroke, or transient ischemic attack.
- High risk for ASCVD was defined per the 2013 ACC/AHA criteria as patients with an LDL-C value >170 mg/dL within 30 days prior to the index date.
- The study was conducted following enrolment and then ended after 30 days post index date.

Figure 1. Sample Selection Criteria and Attrition

Figure 2. LDL-C Pre- vs. Post-RSV Switch

Table 1. Patient Demographics Measured at Index

Table 2. Patient Clinical Characteristics Measured During Pre-Index Period

Results
- The study included 136 patients (Figure 1) with a mean age of 59 years, and 56% were men (Table 1).

Measurement of Change in LDL-C
- The pre-RSV switch LDL-C value was the LDL-C value measured within 30 days before switching from ATV to RSV.
- The post-RSV switch LDL-C value was the first occurring LDL-C value measured within 30 days after switching from ATV to RSV.
- Change in LDL-C was measured as the pre-RSV switch LDL-C value minus the post-RSV switch LDL-C value. (Figure 2).

Measurement of Patient Characteristics
- Patient demographic data were measured using enrolment data as of the index date, and their clinical characteristics were measured using medical and pharmacy claims incurred throughout the 6-month pre-index period.

Statistical Analyses
- Statistical significance of changes in LDL-C from before to after switching from ATV to RSV was tested with paired t-tests (means) and Wilcoxon signed-rank tests (medians).
- Analyses were conducted for all patients as well as the subgroups defined by statin switch pattern.

Conclusion
- Among all patients, mean (SD) and median percentage decreases were -21.0 (29.5) and -20.1% (Figure 4, mean listed in footnote).
- Mean and median percentage decreases in LDL-C were statistically significant (P < 0.001) for every switch pattern and for all patients combined.

Limitations
- The study’s sample comprised only 136 patients, and future analyses in larger samples are warranted.

References