Letters

Practice-Level Variation in Statin Use Among Patients With Diabetes

Insights From the PINNACLE Registry

Statins reduce cardiovascular disease (CVD) and mortality risk in patients with diabetes (1). Practice-level variation in statin use among diabetic patients in cardiology practices is unknown. Accordingly, we examined practice-level variation in statin therapy among 40- to 75-year-old patients with diabetes and no CVD between May 2008 and October 2013 from the American College of Cardiology’s PINNACLE (Practice INNovation And CLinical Excellence) registry, a national cardiology outpatient quality improvement registry that directly extracts data from electronic medical records. Statin use was defined as its prescription at any time point during the study period, as documented in the medical records. We calculated practices’ median statin prescription rates, quarterly trends, and median rate ratio (MRR) for statin prescription and MRR for low-density lipoprotein cholesterol (LDL-C) <100 mg/dl attainment (which was the performance measure at the time) using hierarchical-modified Poisson regression models. The MRR denotes the median relative difference in treatment rates between practices for patients with similar characteristics. An MRR of 1 suggests no practice-level variation, whereas an MRR of 2 suggests that patients with similar characteristics, on average, are twice as likely to be treated differently with statin at any 2 random practices.

Among 215,193 patients (582,048 encounters) from 204 cardiology practices, statins were prescribed in 61.6% of patients with diabetes. Compared with patients not receiving statins, those on statins had a higher prevalence of cardiovascular risk factors, were also more likely to receive nonstatin lipid-lowering therapy (LLT) (28% vs. 13%), and had a lower mean LDL-C level (90 mg/dl vs. 103 mg/dl). Among 182 practices with ≥30 diabetic patients, the median practice statin prescription rate was 62.3% (25th to 75th percentile: 55.7% to 68.1%) (Figure 1), with no noticeable change over time. Among patients with available LDL-C data (n = 62,374), 57.7% had LDL-C <100 mg/dl. For statin use, the unadjusted MRR was 1.56 (95% confidence interval [CI]: 1.51 to 1.60), which was largely unchanged after adjustment for patients’ age, gender, race, hypertension, dyslipidemia, tobacco use, insurance, provider type, and nonstatin LLT use (1.57; 95% CI: 1.52 to 1.61), suggesting 57% practice-level variation in statin use for 2 similar patients. The corresponding MRR for LDL-C <100 mg/dl attainment were 1.47 (95% CI: 1.42 to 1.51) and 1.47 (95% CI: 1.42 to 1.50), respectively (Figure 1).

In this national study of diabetic patients without CVD, statin was prescribed in 62% of patients, with wide practice variation. In a subsample, LDL-C <100 mg/dl was attained in 58%, with significant practice variation. In a Veterans Affairs study from 130 primary care facilities, statin was prescribed in 61% of diabetic patients without CVD with a MRR of 1.20 (2). Although statin use was similar in the current study, there was larger practice-level variation, suggesting more consistent care in the Veterans Affairs system.

Importantly, adjustment for patient-related variables did not change the MRR, suggesting that practice- or provider-related factors primarily determined variation in statin use. Identifying such barriers for optimal statin use and leveraging interventions, such as audit or feedback or decision support tools, should be tested to improve guideline-concordant practice.

Another reason for lower statin use could be related to documentation, including suboptimal statin intolerance documentation. Among 5,722 excluded patient encounters with documented reasons for not prescribing statin therapy (1.0% of the sample), 89.4% were not prescribed statins for...
patient reasons. Although this may partly reflect patients who were intolerant of statin therapy, we did not have data describing statin intolerance. Nonstatin LLT was used more often in statin users than nonusers, suggesting that statin-treated patients were more aggressively treated, and statin intolerance may not completely explain suboptimal statin use. Additionally, despite periodic assessments, data collection in the PINNACLE registry may not be complete.

In conclusion, 38% of patients with diabetes without CVD in cardiology practices from the PINNACLE registry had no documentation of statin prescription with significant practice-level variation. Identifying characteristics of high-performing practices, and barriers at low-performing practices, may help improve statin use in this high-risk population.

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