

OBSERVATIONS

Oral Antidiabetes Medication Adherence and Health Care Utilization Among Medicaid-Enrolled Type 2 Diabetic Patients Beginning Monotherapy

We recently conducted a study that examined the associations among medication adherence and health care costs and utilization in diabetic patients. Previous studies that have investigated these relationships did not necessarily examine patients undergoing antidiabetes therapy for the first time (1,2). We included patients who initiated oral monotherapy and continued with the same medication, as the majority of patients begin monotherapy.

The North Carolina Medicaid database was used to identify type 2 diabetic patients aged ≥ 18 years using at least one ICD-9 code (250.xx, excluding type 1 diabetes codes) and one National Drug Code for antidiabetes medication. Recipients aged ≥ 65 years and crossovers were excluded due to incomplete data.

Patients having complete data 1 year before (baseline) and 1 year after (follow-up) start of therapy were included. New starts of metformin, sulfonylureas, and thiazolidinediones, the most commonly used oral antidiabetes medications, were identified during 1 July 2001 through 30 June 2002 by ensuring that there were no

claims for diabetes medications for 1 year before the first oral antidiabetes prescription fill. Patients on combination therapy, taking more than one antidiabetes medication, or using insulin were excluded.

Adherence was measured as medication possession ratio (3). Total annual health care costs, all-cause hospitalization, and all-cause emergency department visits were examined. Linear regression analysis was employed to study the effect of adherence on health care costs and logistic regression analyses for hospitalization and emergency department visits. Regression analyses controlled for patients' age, race, sex, severity and number of comorbidities, new medication class, number of medications consumed, and physician visits in the follow-up period. Those above the 75th percentile of total annual health care costs in the baseline period were categorized as patients with severe diabetes.

The mean age of the cohort ($n = 3,137$) was 48.6 years. The adherence rate to new medication was 56%. The mean total annual health care cost was \$10,000. Almost 37% of subjects were hospitalized, and 40% had emergency department visits. No association was found between medication adherence and costs. Increasing the medication possession ratio by 10% was significantly associated with a 6.9% decrease in likelihood of hospitalization (odds ratio 0.31 [95% CI 0.23–0.41]) and a 5.1% decrease in likelihood of emergency department visits (0.49 [0.38–0.63]).

The adherence rate to new therapy was 56%. We expected higher adherence because these patients had the simplest regimen. Increased medication adherence was associated with decreased risk of health care utilization. Patients could have a more complex regimen with the

progression of the disease and therefore could have lower adherence and higher risk of hospitalization and emergency department visits. An active role of physicians and pharmacists in advising patients on the importance of pharmacotherapy is necessary, especially for those just beginning therapy.

As this was an observational study, causal inference cannot be made between adherence and utilization. The adherence measure assumes that a prescription filled is a prescription taken. The study could not control for BMI or other factors affecting adherence such as patients' treatment perceptions and beliefs. In spite of the limitations inherent to retrospective database analysis, the study has important findings and implications.

RAHUL A. SHENOLIKAR, PHD
RAJESH BALKRISHNAN, PHD

From Pharmacy Practice and Administration, Ohio State University, Columbus, Ohio.

Address correspondence to Rajesh Balkrishnan, PhD, Ohio State University, 500 W. 12th Ave., Columbus, OH 43210. E-mail: balkrishnan.1@osu.edu.

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