

POSTER ABSTRACTS

9th Annual HMO Research Network Conference

April 1-2, 2003 Denver, CO

Chronic Disease 34

Claims data measurements of medication adherence and metabolic outcomes in type II Diabetes (DMII) patients

Manel Pladevall, MD, MS, Henry Ford Health System Center for Health Services Research
Keoki Williams, MD, Henry Ford Health System Center for Health Services Research
Hugo Xi, MD, Henry Ford Health System Center for Health Services Research
Jennifer Elston-Lafata, PhD Henry Ford Health System Center for Health Services Research

Background: Non-adherence to medications is a common problem in clinical practice especially among patients with asymptomatic chronic conditions in which around 50% of patients are non-adherent. Adherence to medications is not routinely measured in clinical practice and a gold standard that can be easily implemented is not available. Yet, claims data are a useful source of adherence information and have both convergent and predictive validity. No previous studies have examined the correlation between adherence to DMII medications and clinical outcomes such as glycosylated hemoglobin (HbA1c) and cholesterol levels (LDL).

Methods: Using automated data sources available within a large health system, we identified DMII patients who were treated with metformin during the period 1999-2001. Among the patients who met these criteria, we selected a random sample of 663 patients in whom both adherence to metformin and HbA1c and lipid levels were measured. In the subset of patients who also were being treated with lipid lowering drugs, adherence to lipid medication was also measured and correlated with both LDL and HbA1c. Adherence was measured using CMG indices which indicate the proportion of days with gaps in medication over the days in the observation period. Linear regression models were used to adjust for socio-demographic characteristics.

Results:

Characteristic	Metformin Sample	Metformin and lipid lowering agents sample		
	N=663 (44%)	N=258 (41%)		
Mean adherence indices ¹ , %	77.8	83.1		
Median adherence indices ¹ , %	83.8	90.4		
Prevalence of non-adherence ²	44%	41%		
Outcome	Mean HbA1c	Mean LDL	Mean HbA1c	Mean LDL
A < 80%	8.7 ³	115.9 ³	8.8 ³	120.4 ³
A ≥ 80%	7.8	107.9	8.2	105.0
Spearman's correlation	0.24 ⁴	0.15 ⁴	0.17 ⁴	0.25 ⁴

¹To calculate A with CMG, A was calculated as 1-CMG times 100.

²Non-adherence was defined as adherence less than 80%

³P<0.01 (Wilcoxon test)

⁴P<0.01, non-parametric correlation between CMG and HbA1c and LDL levels

Adjustment for socio-demographic characteristics did not attenuate the strength of the associations.

Conclusions: Non-adherence was statistically associated with worse metabolic outcomes. Adherence measured by claims data correlates with clinical outcomes in DMII patients. Claims data is a valid and inexpensive method to measure adherence and could be routinely used in clinical practice.