



A Motivational Interviewing Intervention to Improve Adherence to ACEI/ARBs among Nonadherent Patients with Comorbid Hypertension and Diabetes

Mohan A¹, Majd Z¹, Johnson ML¹, Essien EJ¹, Barner JC², Serna O³, Gallardo E³, Fleming ML⁴, Ordonez N¹, Holstad MM⁵, Abughosh SM¹

¹University of Houston College of Pharmacy; ²The University of Texas at Austin; ³CareAllies; ⁴Department of Pharmacotherapy, Chapman University School of Pharmacy; ⁵Nell Hodgson Woodruff School of Nursing, Emory University

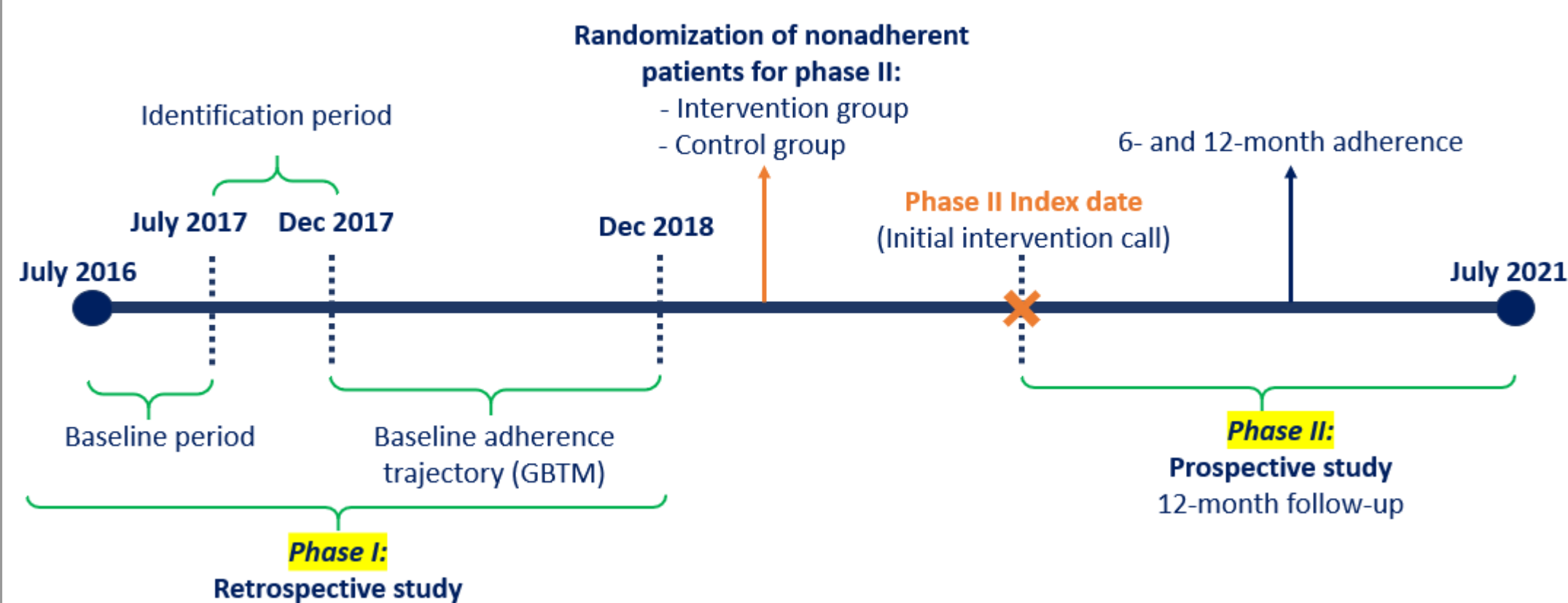
BACKGROUND

- Cardiovascular disease (CVD): the leading cause of mortality in the US
- Diabetes mellitus (DM) and hypertension (HTN): among the leading modifiable risk factors associated with CVD-related deaths
- Angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) are recommended therapy for hypertension in patients with diabetes
- Poor medication adherence leads to suboptimal blood pressure control resulting in higher risk of CVD complications
- Group-based trajectory modeling (GBTM) can depict longitudinal patterns of adherence and identify clusters of patients with similar adherence patterns
- Motivational interviewing (MI) is a patient-centered form of counseling and effective approach to improve adherence by identifying patient-specific barriers

OBJECTIVE

- To evaluate the benefits of pharmacist telephone MI intervention on adherence to ACEI/ARBs among nonadherent patients with HTN and DM who were enrolled in a Medicare Advantage Plan

Figure 1. Study design



METHODS

Data source:

- Administrative claims data from a Texas Medicare Advantage Plan

Inclusion criteria:

- Comorbid HTN and DM
- A refill for ACEI/ARB (July-Dec 2017)

Exclusion criteria:

- Diagnosis of dementia
- ACEI/ARB contraindications

MI Intervention:

- Initial call and 5 follow-up calls by MI-trained student pharmacists
- Customized by past adherence trajectories
- Discussing barriers and potential solutions

Control group:

- Usual care

Adherence measurement:

- Proportion of Days Covered (PDC) measured following the initial call for the intervention and matched date for the control group
- PDC ≥ 0.80 considered as adherent

Covariates:

- Age, gender, health plan (low-income subsidy vs no subsidy), comorbidities (myocardial infarction, depression, congestive heart failure, stroke, coronary artery disease), prescriber specialty (general vs specialty), refill type (≥ 90 -day vs < 90 -day), previous hospitalization (≥ 1 vs none), prevalent users, regimen complexity, CMS risk score, baseline trajectories

Descriptive statistics

- Comparing baseline characteristics using t-tests and chi-square:
 - Intervention vs control group

Multivariable regression analysis

- Linear and logistic regression models:
 - Outcome: PDC/adherence during 6- and 12-month post-MI implementation
 - Primary independent variable: intervention (≥ 4 calls, < 4 calls) vs control

- SAS version 9.4 (SAS Institute, Cary, NC)

RESULTS

Figure 2. Baseline adherence trajectories

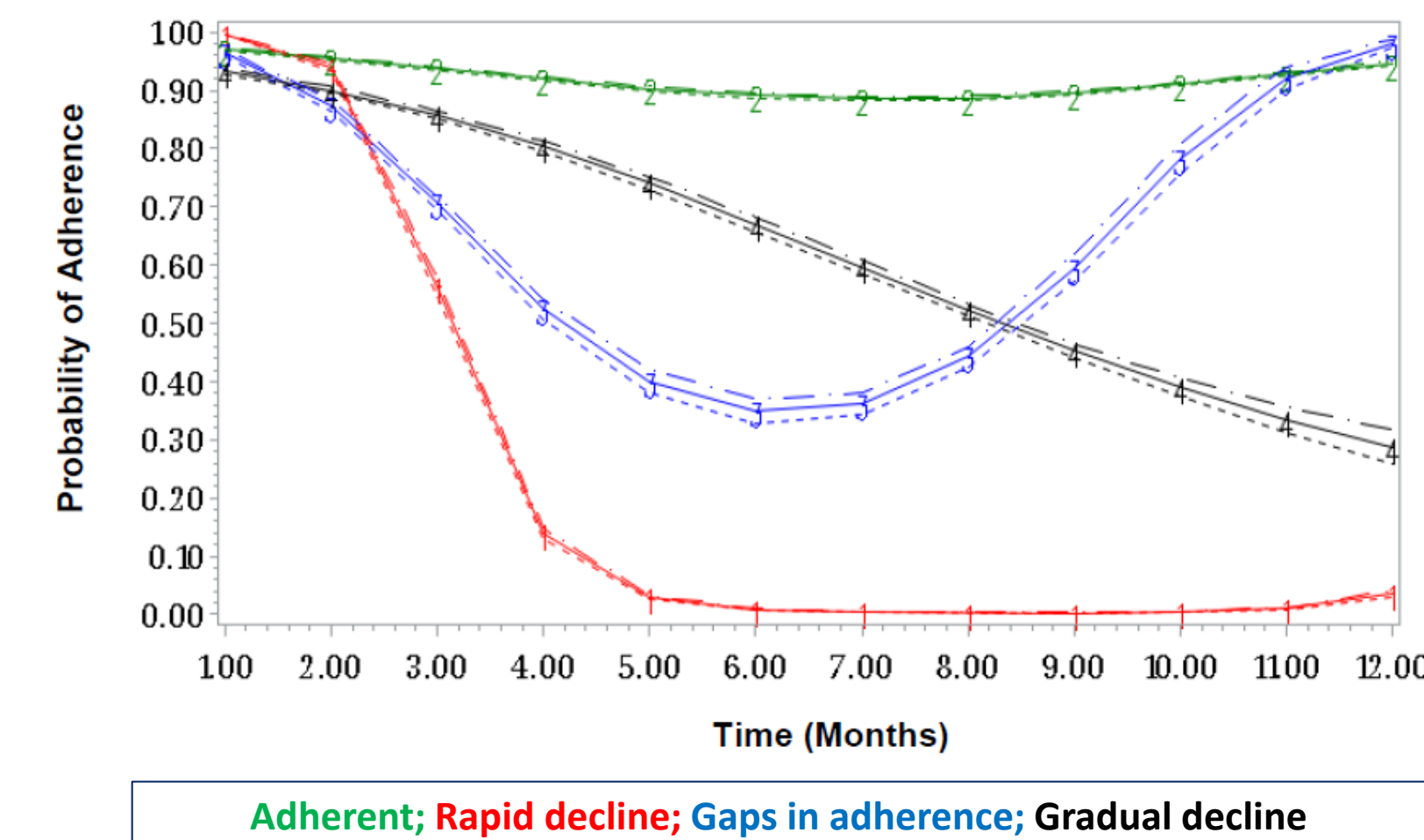


Table 1. Baseline characteristics of the study groups

Variables	Intervention (n=214)	Control (n=428)
Age, mean (SD)	68.53 (9.30)	69.15 (8.82)
Female, n (%)	128 (59.81)	225 (52.57)
LIS beneficiaries, n (%)	107 (50.00)	221 (61.64)
General prescriber, n (%)	186 (86.91)	359 (83.87)
≥ 90 -day refill type, n (%)	191 (89.25)	387 (90.42)
Prevalent use of ACEI/ARB, n (%)*	193 (90.19)	360 (84.11)
CMS risk score, mean (SD)*	1.46 (0.96)	1.27 (0.80)
Gaps in adherence, n (%)	100 (46.73)	175 (40.89)
Gradual decline, n (%)	84 (39.25)	168 (39.25)
Rapid decline, n (%)	30 (14.02)	85 (19.86)

* Statistically significant difference

Table 2. Linear regression model for 6-month adherence (N=642)

Variables	β estimate (SE)	P value
No of calls		
< 4 calls vs control group	0.03 (0.03)	0.28
≥ 4 calls vs control group	0.10 (0.04)	0.02
Previous trajectories		
Gaps in adherence vs rapid decline	0.13 (0.03)	0.0004
Gradual decline vs rapid decline	0.10 (0.03)	0.004

Note: Not statistically significant covariates are not presented in this table.

Table 3. Logistic and linear regression models for 12-month adherence (N=642)

Variables	Model I: Logistic Regression* (Adherent vs nonadherent)		Model II: Linear Regression**	
	OR (95% CI)	P value	β estimate (SE)	P value
No of calls				
< 4 calls vs control group	1.18 (0.79-1.76)	0.40	0.04 (0.02)	0.09
≥ 4 calls vs control group	1.91 (1.10-3.34)	0.02	0.09 (0.03)	0.01
Previous trajectories				
Gaps in adherence vs rapid decline	2.35 (1.44-3.85)	0.0006	0.14 (0.03)	< 0.0001
Gradual decline vs rapid decline	2.10 (1.28-3.47)	0.003	0.10 (0.03)	0.003
Gender				
Male vs Female	0.85 (0.60-1.20)	0.36	-0.05 (0.02)	0.03
Prevalent use of ACEI/ARB				
Yes vs no	1.93 (1.15-3.21)	0.01	0.04 (0.03)	0.26
Prescriber specialty				
General vs Specialty	0.54 (0.31-0.94)	0.03	-0.06 (0.03)	0.10
CMS risk score	0.87 (0.70-1.09)	0.24	-0.03 (0.01)	0.01

Note: Not statistically significant covariates are not presented in this table.

* 51.87% of the intervention and 42.99% of the control group were adherent during the follow-up period.

** Mean PDC (SD) for the intervention and control group were 0.71 (0.27) and 0.64 (0.31), respectively.

CONCLUSION

- Patients who received ≥ 4 calls were more likely to be adherent at 6 and 12 months despite gaps in the follow-up calls due to COVID.
- MI is a promising form of intervention to improve adherence and tailoring the intervention by past adherence patterns may enhance the intervention effectiveness.
- Future research should investigate the impact of MI-based interventions over longer time periods and determine if this leads to a sustainable behavioral change.

SPONSORSHIP

This study was funded by the National Heart, Lung, and Blood Institute (NHBLI), 1R15HL135700-01A1.