Improving ACEI/ARB Adherence Among Nonadherent Patients Using Motivational Interviewing Intervention

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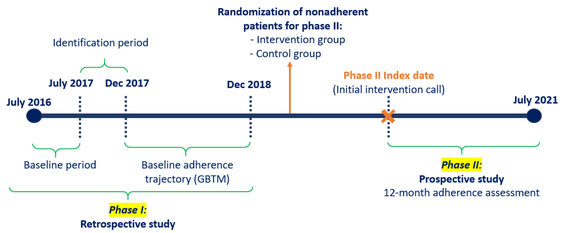
BACKGROUND

- Hypertension (HTN) is an important risk factor for cardiovascular (CV) diseases among patients with diabetes mellitus (DM).
- Despite demonstrated benefits of angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARB), poor medication adherence is prevalent among DM patients.
- Poor adherence to ACEI/ARBs could lead to uncontrolled blood pressure, higher CV complications and mortality rate.
- Group-based trajectory modeling (GBTM) overcomes limitations of traditional adherence methods by describing longitudinal patterns of adherence.
- GBTM identifies clusters of patients with similar medication taking behavior over time which could be used in designing tailored adherence promotion interventions.
- Motivational interviewing (MI) is an effective patient-centered approach that improves medication adherence by identifying patient-specific barriers and exploring possible solutions.

OBJECTIVE

- To evaluate the effectiveness of a phone-based MI intervention conducted by pharmacy students and tailored by the past adherence trajectories on adherence to ACEI/ARBs among nonadherent patients with comorbid DM and HTN

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)
- ☑ Continuous enrollment

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

Control group:

- Usual care

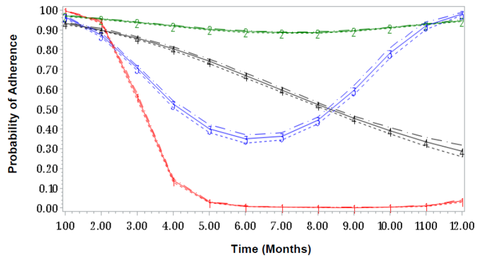
Adherence measurement:

- 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

Statistical analysis:

- Descriptive statistics
- Multivariable logistic regression model:
  - Outcome: adherence during 12-month post-MI implementation
  - Primary predictor: intervention (≥ 4 calls, < 4 calls) vs control
- SAS version 9.4 (SAS Institute, Cary, NC)

Figure 2. Baseline adherence trajectories



Adherent; Rapid decline; Gaps in adherence; Gradual decline

RESULTS

Table 1. Baseline characteristics of the study groups

Variable	Intervention (N=240)	Control (N=480)
Age, mean (SD)	68 (9.29)	69 (9.26)
Male, n (%)	145 (60.42)	270 (56.25)
Low-income subsidy beneficiaries, n (%)	118 (49.17)	247 (51.46)
General prescriber, n (%)	207 (86.25)	410 (85.41)
Myocardial infarction, n (%)	4 (1.67)	9 (1.88)
Depression, n (%)	31 (12.92)	43 (8.96)
Congestive heart failure, n (%)	26 (89.17)	441 (91.88)
Stroke, n (%)	10 (4.17)	13 (2.71)
Coronary artery disease, n (%) *	177 (73.75)	389 (81.04)
≥90-day refill type, n (%)	214 (89.17)	438 (91.25)
≤2 co-medications, n (%)	169 (70.42)	361 (75.21)
No previous Hospitalizations	214 (89.17)	436 (90.83)
Prevalent use of ACEI/ARB, n (%)*	215 (89.58)	395 (82.29)
Regimen complexity, mean (SD)*	4.27 (4.32)	3.59 (3.76)
CMS risk score, mean (SD)*	1.50 (0.99)	1.31 (0.86)
Baseline adherence trajectories		
Gaps in adherence, n (%)	102 (42.50)	188 (39.17)
Gradual decline, n (%)	94 (39.17)	179 (37.29)
Rapid decline, n (%)	44 (18.33)	113 (23.54)

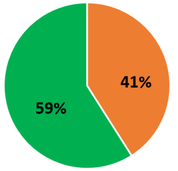
* Statistically significant difference

Table 2. Logistic regression model (N=720)

Variables	Adherence vs nonadherence	
	OR (95% CI)	P value
No of calls		
<4 calls vs control	1.13 (0.77-1.65)	0.55
≥4 calls vs control	2.01 (1.17-3.44)	0.01
Previous trajectories		
Gaps in adherence vs rapid decline	3.19 (1.99-5.10)	<0.0001
Gradual decline vs rapid decline	2.63 (1.63-4.25)	<0.001
Gender (Male vs female)	1.03 (0.74-1.45)	0.82
Age	0.99 (0.97-1.01)	0.54
Health plan (No subsidy vs low-income subsidy)	0.88 (0.63-1.24)	0.49
Myocardial infarction (Yes vs no)	0.89 (0.22-3.49)	0.87
Depression (Yes vs no)	1.15 (0.67-1.96)	0.59
Congestive heart failure (Yes vs no)	1.22 (0.64-2.34)	0.54
Stroke (Yes vs no)	0.93 (0.34-2.46)	0.88
Coronary artery disease (Yes vs no)	0.92 (0.59-1.42)	0.71
Refill type (≥90 days vs. <90 days)	1.26 (0.70-2.27)	0.42
Number of co-medications (>2 vs ≤2)	1.94 (1.11-3.38)	0.01
Previous hospitalizations (≥1 vs none)	0.80 (0.43-1.51)	0.50
Prevalent users (Yes vs no)	1.68 (1.03-2.75)	0.03
Prescriber specialty (General vs Specialty)	0.69 (0.41-1.17)	0.17
Regimen complexity	0.93 (0.87-0.99)	0.03
CMS risk score	0.81 (0.66-0.99)	0.04

[a] 46.25% of the intervention and 42.09% of the control group were adherent during the follow-up period.
[b] Mean PDC (SD) for the intervention and control group were 0.63 (0.34) and 0.60 (0.33), respectively.

Figure 3. Adherence barriers identified from the initial calls



Denied having any barrier
Reported at least one barrier

Most frequent barriers:

- Forgetfulness
- Side effects
- Comorbidities/polypharmacy
- Lack of knowledge about disease/medication
- Cost issues
- Family issues

CONCLUSION

- Motivational interviewing with multiple patient encounters is a promising form of intervention that can improve adherence to ACEI/ARBs among nonadherent patients.
- Tailoring interventions based on past adherence trajectories may enhance intervention effectiveness as it provides more insight into the patient behavior.
- Future research should assess benefits of MI-based interventions on medication adherence over a longer follow-up period.

SPONSORSHIP

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