Trends, Management Patterns, and Predictors of Leaving Against Medical Advice among Patients with Documented Noncompliance Admitted for Acute Myocardial Infarction

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KEY WORDS: noncompliance; high-risk patients; leaving against medical advice (LAMA); acute myocardial infarction (AMI).

J Gen Intern Med 34(4):486–8
DOI: 10.1007/s11606-018-4671-8

INTRODUCTION

Noncompliance (NC) and leaving against medical advice (LAMA) are risk factors for poor outcomes, including hospital readmission and mortality.[1,2] This study aims to investigate the relationship between NC and LAMA, describe characteristics of NC patients, evaluate the clinical management of acute myocardial infarction (AMI) in NC patients, and identify predictors of LAMA in this population. We hypothesized that NC would be associated with higher rates of LAMA.

METHODS

We identified adults with a primary diagnosis of AMI and documented NC using the National Inpatient Survey (2010–2014). Documented NC is defined by the ICD-9-CM Diagnosis Code V15.81 as a personal history of noncompliance with medical treatment, presenting hazards to health. We used logistic regression to perform temporal trend analysis for documented NC among patients with a primary diagnosis of AMI. We then compared demographic and clinical characteristics as well as outcomes, primarily LAMA, between this group and patients without documented NC. Weighted regression analysis was used to identify predictors of LAMA.

RESULTS

Of the 2,988,294 patients with a primary diagnosis of AMI, 4.7% ($n = 141,346$) had documented NC. The incidence of NC increased from 3.9% in 2010 to 5.4% in 2014 (p trend< 0.001). The NC group was younger, more often male, and more likely to be black or Hispanic, was more likely to be uninsured or on Medicaid as well as have comorbidities including hypertension, diabetes, chronic pulmonary disease, and obesity. Rates of substance abuse and specific psychiatric disorders were significantly higher in the NC group.

LAMA was more than four times more likely in patients with NC (Fig. 1). Patients in the NC cohort were more likely to undergo coronary angiography or PCI, a finding that was due to a higher incidence of balloon angioplasty and not stent placement. They were also more likely to receive bare metal stents. In multivariate analysis, NC increased the risk of LAMA (OR 2.29, 95% CI 2.09–2.5; $p < .001$), regardless of the type of AMI [STEMI (OR 2.42, 95% CI 2.04–2.87; $p < .001$); NSTEMI (OR 2.22, 95% CI 2.0–2.46; $p < .001$)]. Male gender, current tobacco abuse, anxiety, adjustment and personality disorders as well as being on Medicaid insurance were all significantly associated with LAMA in the NC cohort, while interventions (coronary angiography, PCI, and CABG) were associated with a lower odds for LAMA (Table 1).

DISCUSSION

This study reports an increasing incidence of documented NC among patients (admissions) for AMI. As has been reported previously,[1,3,4] we also found that young males of ethnic minorities and those with mental disorders have higher LAMA rates. Although there appears to be no bias against patients with NC with regard to intervention, practice patterns (i.e., stent placement versus plain old balloon angioplasty and bare metal stent versus drug eluting stent) may have been affected by medical compliance. This is a shift in previous knowledge of management patient with AMI that suggests lower rates of intervention in this patient population.[1]

Published online November 6, 2018

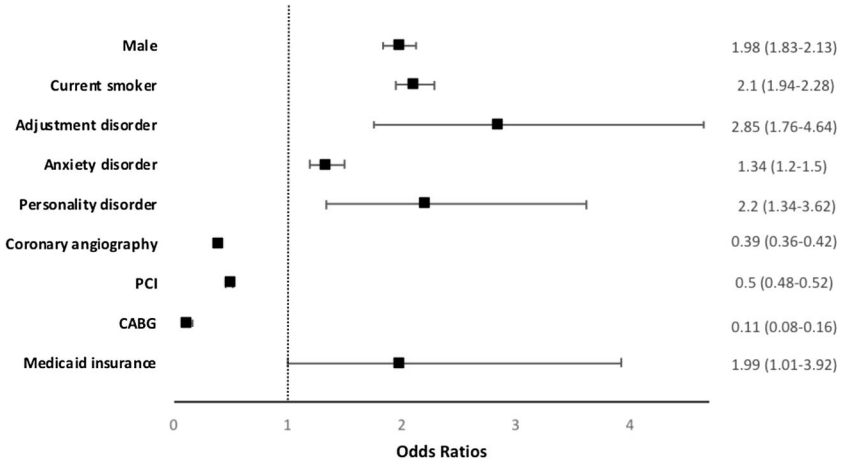

Fig. 1 Forest plot showing factors associated with LAMA in the NC population. PCI, percutaneous coronary intervention; CABG, coronary artery bypass grafting.

Our study suggests that NC is a strong predictor of LAMA. Early identification of patients at-risk for LAMA (males, tobacco users, personality disorders, low income) may prevent truncated care, hospital readmissions, higher health care costs, and mortality following AMI. Given recent studies that support shorter duration of dual antiplatelet therapy,[5] we anticipate that practice patterns may also change. Better understanding of patient family issues, living situation, and previous medical experiences may also impact outcomes of this study and patient care.[6]

Table 1 Comparison of Factors in Patients With and Without Documented Noncompliance (NC)

	Noncompliant (118,037)	Others (2,235,161)	*P* value
Demographics			
Age	59.6 ± 12.8	67.9 ± 14.2	< 0.001
Female	36,444 (30.9)	889,746 (39.8)	< 0.001
Caucasian	69,556 (58.9)	1,561,253 (69.8)	< 0.001
Black	23,540 (19.9)	222,422 (10)	< 0.001
Hispanic	12,092 (10.2)	169,591 (7.6)	< 0.001
Comorbidities			
Hypertension	92,911 (78.7)	1,596,251 (71.4)	< 0.001
Diabetes mellitus	57,437 (48.7)	810,899 (36.3)	< 0.001
Chronic pulmonary disease	27,631 (23.4)	463,342 (20.7)	< 0.001
Renal failure	23,329 (19.8)	453,285 (20.3)	0.065
Obesity	27,388 (23.2)	314,524 (14.1)	< 0.001
Current smoker	53,529 (45.3)	511,964 (22.9)	< 0.001
Depression	9855 (8.3)	170,022 (7.6)	< 0.001
Psychoses	5577 (4.7)	53,046 (2.4)	< 0.001
Adjustment disorder	410 (0.3)	4115 (0.2)	< 0.001
Anxiety disorder	9023 (7.6)	153,708 (6.9)	< 0.001
Personality disorder	438 (0.4)	1468 (0.1)	< 0.001
Alcohol abuse	9726 (8.2)	65,067 (2.9)	< 0.001
Drug abuse	10,629 (9)	48,823 (2.2)	< 0.001
Insurance			
Medicare	47,726 (40.4)	1,298,251 (58.1)	< 0.001
Medicaid	17,832 (15.1)	144,254 (6.5)	< 0.001
Self-pay	17,625 (14.9)	131,570 (5.9)	< 0.001
Management			
Coronary angiography	82,846 (70.2)	1,493,239 (66.8)	< 0.001
PCI	54,648 (46.3)	1,006,638 (45.0)	< 0.001
Stent placement	48,897 (41.4)	933,130 (41.7)	0.374
Bare metal stent placement	18,909 (16)	251,210 (11.2)	< 0.001
Plain old balloon angioplasty	5751 (4.9)	73,508 (3.3)	< 0.001
CABG	7759 (6.6)	153,044 (6.8)	0.148
Disposition			
Routine discharge	80,540 (68.2)	1,341,797 (60)	< 0.001
Left against medical advice	4359 (3.7)	18,168 (0.8)	< 0.001
Died during hospitalization	2746 (2.3)	118,671 (5.3)	< 0.001

PCI, percutaneous coronary intervention; CABG, coronary artery bypass grafting

CONCLUSION

The incidence of NC in patients admitted with an AMI was higher in young, black and Hispanic males, and low-income patients with Medicaid or no insurance. NC patients were significantly more likely to LAMA. Predictors of LAMA in this population included current tobacco abuse and adjustment, anxiety or personality disorders, and being insured by Medicaid.

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