

Supplemental Material

Table S1. Effects of in-hospital medications and cardiovascular prescriptions in the study cohort.

	Dual antiplatelets		Anticoagulants		β-blockers		CCB		ACEI/ARB		Statins	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
COPD	0.87*	0.75–1.00	0.82*	0.70–0.95	0.71*	0.63–0.80	1.04	0.91–1.17	0.82*	0.73–0.93	0.89	0.79–1.01
Inhalation therapy†					0.93	0.81–1.07	1.24*	1.07–1.43			0.85*	0.74–0.98
Theophylline	0.80*	0.66–0.97	0.75*	0.61–0.91	0.60*	0.50–0.71	1.22*	1.02–1.46			0.97	0.80–1.18
Oral β-agonists	0.83	0.65–1.07	0.85	0.65–1.10	0.73*	0.58–0.93	0.99	0.78–1.25			0.67*	0.51–0.88
Mucolytic agents							1.43*	1.18–1.74			1.10	0.97–1.25
Cough and cold preparations	1.37*	1.20–1.57	1.34*	1.16–1.55	1.34*	1.19–1.50	1.01	0.85–1.22	1.31*	1.17–1.48		
Antibiotics	0.45*	0.39–0.52	0.46*	0.39–0.53	0.69*	0.61–0.77	1.11	0.98–1.26	0.55*	0.49–0.63	0.65*	0.58–0.74
Diuretics	1.54*	1.34–1.77	1.53*	1.32–1.79	1.55*	1.37–1.75	1.61*	1.42–1.82	1.78*	1.57–2.01		
Anti-arrhythmics			1.36*	1.15–1.60	0.78*	0.68–0.89			0.78*	0.68–0.88	0.82*	0.72–0.93

For each cardiovascular medication in the first row of the table, we performed univariable analysis that included variables in the first column of the table. Variables with *P* values of <.15 were subjected to multivariable analysis. * *P* < .05

All models (both univariable and multivariable) were adjusted for age, sex, socioeconomic status, year of hospitalization, hospital length of stay, and comorbidities.

†Inhalation therapy included bronchodilator inhalation, steroid inhalation, and mucolytic inhalation therapy.

Abbreviations: ACEI/ARB, angiotensin-converting enzyme inhibitor/angiotensin II receptor blocker; CCB, calcium channel blockers; CI, confidence interval; COPD, chronic obstructive pulmonary disease; OR, odds ratio.

Table S2. Temporal trends of in-hospital treatment in acute myocardial infarction patients with or without chronic obstructive pulmonary disease between 2004 and 2013.

Treatment received (%)	2004/05	2006/07	2008/09	2010/11	2012/13	P _{trends}
Dual antiplatelets						
COPD	46.7	62.1	72.3	78.4	81.8	<.0001
non-COPD	59.1	73.9	81.1	83.0	89.4	<.0001
Anticoagulants						
COPD	70.7	71.6	74.6	77.1	80.8	.0003
non-COPD	79.5	82.2	84.2	84.0	89.1	<.0001
β-blockers						
COPD	35.4	44.5	45.2	48.9	49.9	.0003
non-COPD	60.2	59.5	61.9	59.1	64.7	.0784
CCB						
COPD	44.1	39.1	43.1	38.7	39.4	.2690
non-COPD	37.4	34.8	35.1	33.2	31.3	.0035
ACEI/ARB						
COPD	55.9	62.5	58.4	63.7	58.6	.6390
non-COPD	69.8	66.5	68.5	66.4	67.5	.2986
Statin						
COPD	23.6	25.6	39.1	45.6	49.1	<.0001
non-COPD	31.3	38.4	51.4	56.9	64.0	<.0001
Coronary angiography						
COPD	42.4	44.5	57.4	55.9	60.8	<.0001
non-COPD	57.7	62.9	70.5	69.5	78.4	<.0001
PCI						
COPD	24.0	32.2	43.1	43.5	48.7	<.0001
non-COPD	34.7	48.2	57.9	57.1	66.3	<.0001
CABG						
COPD	3.1	3.2	2.8	2.3	4.0	.6114
non-COPD	6.7	6.8	5.4	4.3	3.5	.0001

Interaction of group indicator of COPD with time: significant in β-blockers (P = .0075) and CABG (P = .0311) groups.

Abbreviations: ACEI/ARB, angiotensin converting enzyme inhibitor/angiotensin II receptor blocker; CABG, coronary artery bypass grafting; CCB, calcium channel blockers; COPD, chronic obstructive pulmonary disease; PCI, percutaneous coronary intervention.

Table S3. Temporal trends in clinical outcomes in acute myocardial infarction patients with and without chronic obstructive pulmonary disease (COPD) between 2004 and 2013.

Mortality (%)	2004/05	2006/07	2008/09	2010/11	2012/13	P _{trends}
In-hospital						
COPD	29.7	26.5	26.1	24.4	23.4	.0563
non-COPD	18.4	18.1	14.0	16.0	11.4	<.0001
90-days						
COPD	33.2	30.0	30.5	31.1	27.3	.1757
non-COPD	22.5	21.9	17.2	19.8	14.3	<.0001
1-year						
COPD	46.3	43.5	40.6	41.6	33.1	.0004
non-COPD	29.1	27.2	23.7	26.0	19.8	<.0001
Respiratory failure						
COPD	36.2	35.3	27.4	28.8	26.3	.0013
non-COPD	26.4	24.1	21.8	21.1	17.2	<.0001
Shock episode						
COPD	47.6	47.0	41.6	42.4	42.8	.1329
non-COPD	45.1	39.6	37.9	38.2	34.2	<.0001

Interaction of group indicator of COPD with time: all non-significant.

Table S4. The mortality of acute myocardial infarction between patients with and without chronic obstructive pulmonary disease (COPD) that received specific treatment.

Mortality	In-hospital			90-days			1-year		
	aHR	95% CI	P value	aHR	95% CI	P value	aHR	95% CI	P value
DAPT, β -blockers, ACEI/ARB, statin and coronary revascularization	1.15	0.60-2.24	.6762	1.16	0.70-1.95	.5615	1.33	0.89-1.98	.1703
Coronary angiography	1.14	0.91-1.43	.2597	1.08	0.88-1.31	.4719	1.12	0.95-1.32	.1629
No coronary angiography	1.22	1.06-1.41	.0070	1.14	1.00-1.30	.0585	1.12	1.00-1.26	.0583

All models were adjusted for age, sex, socioeconomic status, year of hospitalization, hospital length of stay, comorbidities (diabetes mellitus, hypertension, previous myocardial infarction, ischemic heart disease, congestive heart failure, stroke, dyslipidemia, chronic kidney disease and atrial fibrillation).

Abbreviations: ACEI/ARB, angiotensin-converting enzyme inhibitor/angiotensin II receptor blocker; aHR, adjusted hazard ratio; CI, confidence interval; COPD, chronic obstructive pulmonary disease; DAPT, dual-antiplatelet therapy.

Table S5. Results of sensitivity analyses: hazard ratio for mortality outcomes, and odds ratio for receiving specific treatment and motility of different grouping of patients

	Original model: AMI population		Sensitivity analysis 1: propensity score 1:1 matching on baseline characters		Sensitivity analysis 2: Combine asthma and bronchiectasis patients into COPD group		Sensitivity analysis 3: ACS population receiving specific treatment	
COPD patient number	1921		1800		2309		2102	
Non-COPD patient number	4849		1800		4461		5707	
Clinical outcomes	aHR	95% CI	aHR	95% CI	aHR	95% CI	aHR	95% CI
In-hospital mortality	1.25 ^{***}	1.11-1.41	1.28 ^{***}	1.12-1.48	1.28 ^{***}	1.13-1.44	1.24 ^{**}	1.06-1.44
90-day mortality	1.18 ^{**}	1.06-1.32	1.22 ^{**}	1.08-1.38	1.18 ^{**}	1.06-1.31	1.16 [*]	1.01-1.33
1-year mortality	1.20 ^{***}	1.09-1.32	1.22 ^{***}	1.09-1.35	1.19 ^{***}	1.08-1.30	1.17 ^{**}	1.04-1.31
Respiratory failure [†]	1.16 [*]	1.01-1.32	1.22 ^{**}	1.05-1.42	1.19 ^{**}	1.04-1.35	1.17 [*]	1.01-1.36
Shock [†]	0.97	0.86-1.09	0.99	0.86-1.13	0.96	0.86-1.08	0.97	0.86-1.10
In-hospital treatments	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI
Dual-antiplatelets	0.82 ^{**}	0.72-0.94	0.83 [*]	0.71-0.97	0.83 ^{**}	0.73-0.95	0.80 ^{**}	0.70-0.92
Anticoagulants	0.76 ^{***}	0.66-0.88	0.78 ^{**}	0.66-0.93	0.81 ^{**}	0.70-0.93	1.01	0.77-1.31
β-blockers	0.66 ^{***}	0.59-0.74	0.68 ^{***}	0.59-0.78	0.68 ^{***}	0.61-0.76	0.71 ^{***}	0.64-0.79
CCB	1.11	0.98-1.25	1.14	0.99-1.31	1.11	0.99-1.25	1.09	0.97-1.21

ACEI/ARB	0.83**	0.73-0.93	0.85*	0.74-0.98	0.84**	0.75-0.94	0.87*	0.77-0.97
Statin	0.85**	0.75-0.96	0.85*	0.74-0.98	0.80***	0.72-0.90	0.91	0.81-1.02
Coronary angiography	0.76***	0.67-0.86	0.79**	0.68-0.91	0.79***	0.70-0.89	0.82**	0.72-0.93
PCI	0.78***	0.69-0.88	0.79**	0.69-0.91	0.80***	0.71-0.90	0.82***	0.73-0.91
CABG	0.57***	0.41-0.77	0.65*	0.46-0.93	0.69**	0.52-0.91	0.66**	0.51-0.86

* $P < .05$; ** $P < .01$; *** $P < .001$;

† : adjusted odds ratio

All models were adjusted for age, sex, socioeconomic status, length of hospital stay, year of hospitalization and comorbidities (diabetes mellitus, hypertension, previous myocardial infarction, ischemic heart disease, congestive heart failure, stroke, dyslipidemia, chronic kidney disease and atrial fibrillation).

Abbreviations: ACEI/ARB, angiotensin-converting enzyme inhibitor/angiotensin II receptor blocker; ACS, acute coronary syndrome; aHR, adjusted hazard ratio; AMI, acute myocardial infarction; aOR, adjusted odds ratio; CABG, coronary artery bypass grafting; CCB, calcium channel blockers; CI, confidence interval; COPD, chronic obstructive pulmonary disease; PCI, percutaneous coronary intervention