

SUPPLEMENTAL MATERIAL

Supplemental Figure 1. Study design to analyze associations between acute exacerbation of chronic obstructive pulmonary disease and atrial fibrillation-related emergency department visits or hospitalizations

Visualized presentation of the present study design to analyze the association between AECOPD hospitalization and AF-related emergency department visits or hospitalization by using the self-controlled case series method.

The RR was calculated by comparing the rate in the reference period (i.e., pre-AECOPD days 1 to 90) with that in the subsequent four 90-day periods (i.e., post-AECOPD days 1 to 90, 91 to 180, 181 to 270, and 271 to 360).

Supplemental Table 1. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by age

Supplemental Table 2. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by sex

Supplemental Table 3. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by presence of atrial fibrillation at the index hospitalization

Supplemental Table 4. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by season of index hospitalization

Supplemental Table 5. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, including those with primary diagnosis of heart failure and secondary diagnosis of atrial fibrillation (n=1,062)

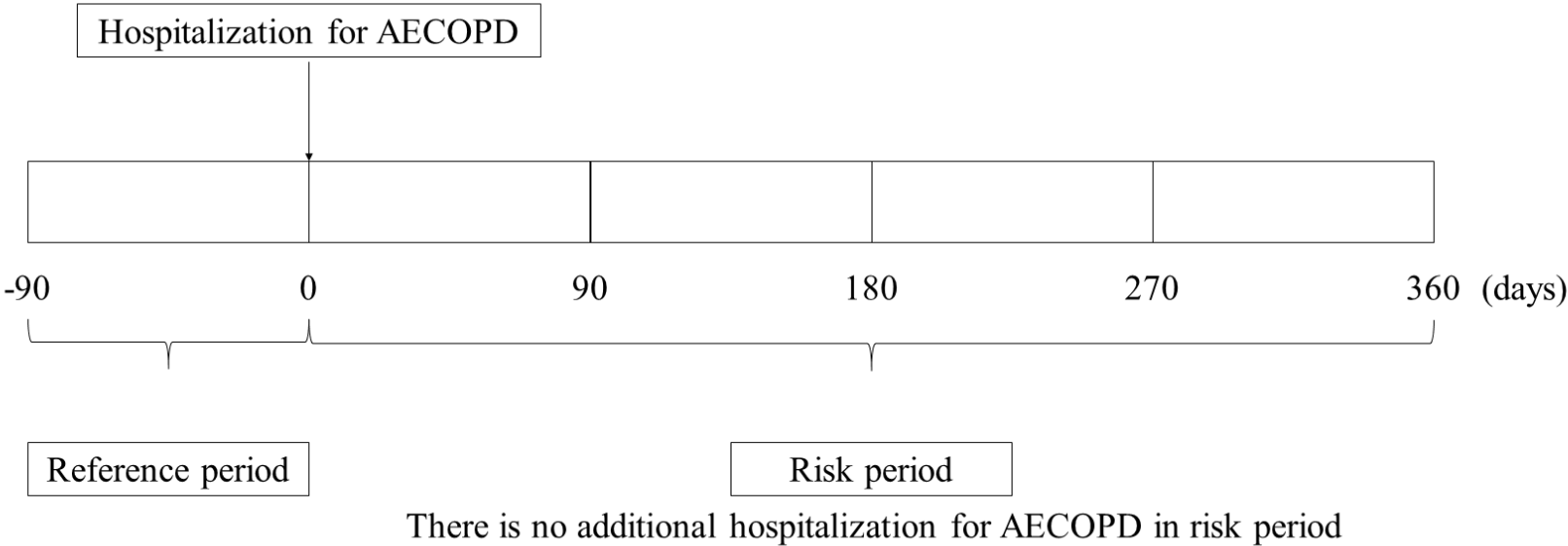
Supplemental Table 6. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease (AECOPD), excluding those who had emergency department visit for AECOPD within 90 days preceding hospitalization (n=936)

Supplemental Table 7. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, including those with multiple hospitalizations for acute exacerbation of chronic obstructive pulmonary disease during the follow-up period (n=1,547)

Supplemental Table 8. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease among those who are known to live at least 360 days after index hospitalization (n=602)

Supplemental Table 9. Odds ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease (n=944)

Supplemental Figure 1. Study design to analyze associations between acute exacerbation of chronic obstructive pulmonary disease and atrial fibrillation-related emergency department visits or hospitalizations



Supplemental Table 1. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by age

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Aged 40-64 years (n=178)				
Pre-AECOPD period				
-1 to -90 days	40	7.5	1 (reference)	-
Post-AECOPD period				
1 to 90 days	60	11.2	1.50 (1.01-2.24)	0.04
91 to 180 days	53	9.9	1.33 (0.88-2.00)	0.18
181 to 270 days	50	9.4	1.25 (0.82-1.89)	0.29
271 to 360 days	57	10.7	1.43 (0.95-2.13)	0.09
Aged ≥65 years (n=766)				
Pre-AECOPD period				
-1 to -90 days	167	7.3	1 (reference)	-
Post-AECOPD period				
1 to 90 days	340	14.8	2.04 (1.69-2.45)	<0.001
91 to 180 days	160	7.0	0.96 (0.77-1.19)	0.70
181 to 270 days	123	5.4	0.74 (0.58-0.93)	0.01
271 to 360 days	129	5.6	0.77 (0.61-0.97)	0.03

Abbreviation: CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 2. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by sex

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Men (n=384)				
Pre-AECOPD period				
-1 to -90 days	89	7.7	1 (reference)	-
Post-AECOPD period				
1 to 90 days	143	12.4	1.61 (1.23-2.09)	<0.001
91 to 180 days	88	7.6	0.99 (0.74-1.33)	0.94
181 to 270 days	85	7.4	0.96 (0.71-1.29)	0.76
271 to 360 days	86	7.5	0.97 (0.72-1.30)	0.82
Women (n=560)				
Pre-AECOPD period				
-1 to -90 days	118	7.0	1 (reference)	-
Post-AECOPD period				
1 to 90 days	257	15.3	2.18 (1.75-2.71)	<0.001
91 to 180 days	125	7.4	1.06 (0.82-1.36)	0.65
181 to 270 days	88	5.2	0.75 (0.57-0.98)	0.04
271 to 360 days	100	6.0	0.85 (0.65-1.11)	0.22

Abbreviation: CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 3. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by presence of atrial fibrillation at the index hospitalization

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
With atrial fibrillation (n=685)				
Pre-AECOPD period				
-1 to -90 days	165	8.0	1 (reference)	-
Post-AECOPD period				
1 to 90 days	297	14.5	1.80 (1.49-2.18)	<0.001
91 to 180 days	147	7.2	0.89 (0.71-1.11)	0.31
181 to 270 days	119	5.8	0.72 (0.57-0.91)	0.01
271 to 360 days	138	6.7	0.84 (0.67-1.05)	0.12
Without atrial fibrillation (n=259)				
Pre-AECOPD period				
-1 to -90 days	42	5.4	1 (reference)	-
Post-AECOPD period				
1 to 90 days	103	13.3	2.45 (1.71-3.51)	<0.001
91 to 180 days	66	8.5	1.57 (1.07-2.31)	0.02
181 to 270 days	54	6.9	1.29 (0.86-1.92)	0.22
271 to 360 days	48	6.2	1.14 (0.76-1.73)	0.53

Abbreviations: AECOPD, acute exacerbation of chronic obstructive pulmonary disease; CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 4. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, stratified by season of index hospitalization

Days from the index hospitalization	March-May (n=170)				June-August (n=100)			
	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Pre-AECOPD period								
-1 to -90 days	41	8.0	1 (reference)	-	21	7.0	1 (reference)	-
Post-AECOPD period								
1 to 90 days	64	12.5	1.56 (1.05-2.31)	0.03	41	13.7	1.95 (1.15-3.30)	0.01
91 to 180 days	43	8.4	1.05 (0.68-1.61)	0.83	23	7.7	1.10 (0.61-1.98)	0.76
181 to 270 days	24	4.7	0.59 (0.35-0.97)	0.04	13	4.3	0.62 (0.31-1.24)	0.17
271 to 360 days	42	8.2	1.02 (0.67-1.58)	0.91	23	7.7	1.10 (0.61-1.98)	0.76
Days from the index hospitalization	September-November (n=105)				December-February (n=206)			
	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Pre-AECOPD period								
-1 to -90 days	22	7.0	1 (reference)	-	41	6.6	1 (reference)	-
Post-AECOPD period								
1 to 90 days	45	14.3	2.05 (1.23-3.41)	0.01	105	17.0	2.56 (1.79-3.67)	<0.001
91 to 180 days	29	9.2	1.32 (0.76-2.29)	0.33	40	6.5	0.98 (0.63-1.51)	0.91
181 to 270 days	20	6.3	0.91 (0.50-1.67)	0.76	42	6.8	1.02 (0.67-1.58)	0.91
271 to 360 days	15	4.8	0.68 (0.35-1.31)	0.25	44	7.1	1.07 (0.70-1.64)	0.75

Abbreviation: CI, confidence interval

Missing information on admission month in 363 patients

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 5. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, including those with primary diagnosis of heart failure and secondary diagnosis of atrial fibrillation (n=1,062)

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Pre-AECOPD period				
-1 to -90 days	239	7.5	1 (reference)	-
Post-AECOPD period				
1 to 90 days	454	14.2	1.90 (1.62-2.22)	<0.001
91 to 180 days	242	7.6	1.01 (0.85-1.21)	0.89
181 to 270 days	191	6.0	0.80 (0.66-0.97)	0.02
271 to 360 days	206	6.5	0.86 (0.72-1.04)	0.12

Abbreviations: AECOPD, acute exacerbation of chronic obstructive pulmonary disease; CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 6. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease (AECOPD), excluding those who had emergency department visit for AECOPD within 90 days preceding hospitalization (n=936)

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95% CI)	P value
Pre-AECOPD period				
-1 to -90 days	206	7.3	1 (reference)	-
Post-AECOPD period				
1 to 90 days	397	14.1	1.93 (1.63-2.28)	<0.001
91 to 180 days	212	7.5	1.03 (0.85-1.25)	0.77
181 to 270 days	173	6.2	0.84 (0.69-1.03)	0.09
271 to 360 days	183	6.5	0.89 (0.73-1.08)	0.24

Abbreviation: CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 7. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease, including those with multiple hospitalizations for acute exacerbation of chronic obstructive pulmonary disease during the follow-up period (n=1,547)

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95%CI)	P value
Pre-AECOPD period				
-1 to -90 days	284	6.1	1 (reference)	-
Post-AECOPD period				
1 to 90 days	659	14.2	2.32 (2.02-2.67)	<0.001
91 to 180 days	412	8.9	1.45 (1.25-1.69)	<0.001
181 to 270 days	321	6.9	1.13 (0.96-1.33)	0.13
271 to 360 days	324	7.0	1.14 (0.97-1.34)	0.11

Abbreviations: AECOPD, acute exacerbation of chronic obstructive pulmonary disease; CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 8. Rate ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease among those who are known to live at least 360 days after index hospitalization (n=602)

Days from the index hospitalization	Number of outcome events	Rate (per 100 person-months)	Rate ratio* (95% CI)	P value
Pre-AECOPD period				
-1 to -90 days	120	6.6	1 (reference)	-
Post-AECOPD period				
1 to 90 days	232	12.8	1.93 (1.55-2.41)	<0.001
91 to 180 days	145	8.0	1.21 (0.95-1.54)	0.13
181 to 270 days	130	7.2	1.08 (0.85-1.39)	0.53
271 to 360 days	155	8.6	1.29 (1.02-1.64)	0.04

Abbreviation: CI, confidence interval

*Rate ratios were calculated by using conditional Poisson regression models

Supplemental Table 9. Odds ratios of emergency department visit or hospitalization for atrial fibrillation in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease (n=944)

Days from the index hospitalization	Patients with outcome event	Outcome event rate, %	Odds ratio* (95% CI)	P value
Pre-AECOPD period				
-1 to -90 days	185	19.6	1 (reference)	-
Post-AECOPD period				
1 to 90 days	362	38.4	2.55 (2.07-3.14)	<0.001
91 to 180 days	193	20.4	1.05 (0.84-1.32)	0.65
181 to 270 days	151	16.0	0.78 (0.62-0.99)	0.04
271 to 360 days	166	17.6	0.88 (0.69-1.10)	0.26

Abbreviation: CI, confidence interval

*Odds ratios were calculated by using conditional logistic regression models