

Supplementary Content

Table S1: Anti-asthma medications used to identify asthma patients

Active pharmaceutical ingredients
Beclomethasone, Levalbuterol, Ketotifen fumarate, Albuterol, Albuterol-sulfate, Albuterol-Ipratropium, Aminophylline, Arformoterol, Beclomethasone-Dipropionate, Fluticasone-Vilanterol, Arformoterol, Budesonide-formoterol, Mometasone-formoterol, Fluticasone furoate-vilanterol, Fluticasone propion-salmeterol, Fluticasone-Salmeterol, Formoterol, Formoterol-fumarate, Ipratropium-bromide, Ipratropium-Albuterol, Levalbuterol, Levalbuterol-Tartrate, Fomoterol-Fumarate, Pirbuterol, Salmeterol, Salmeterol Xinafoate, Tiotropium Br/Olodaterol, Terbutaline Sulfate, Tiotropium-Bromide, Tiotropium-olodaterol, Ketotifen, and Zafirlukast.

Note: Listed here are the de-duplicated drug names, excluding the drug trade names as well as suffixes.

Table S2: Interaction Models of Exposure and Race

Variable	Coefficient	Standard Error	OR (95% CI)	p-value
Pre-ICU MTK exposure	β_1 : -0.527	0.219	0.591 (0.384-0.908) ^c	0.016 ^a
Myocardial infarction	β_2 : -0.281	0.375	0.755 (0.362-1.574)	0.454 ^a
Interaction item	β_3 : 1.222	0.506	-	0.016 ^b

Other covariates: race, age, gender, type of icu, SAPSII, SOFA, CCI, cerebrovascular disease, dementia, severe liver disease, and diabetes.

^aA p-value less than 0.05 indicates a significant effect of the corresponding variable on the dependent variable (delirium), otherwise is no significant effect.

^bThe regression coefficient of the interaction term (β_3) had a p-value <0.05 but the sign of β_3 was opposite to that of β_1 , suggesting that myocardial infarction significantly attenuates the association between pre-ICU MTK exposure and delirium during hospitalization.

^cIn patients without myocardial infarction, the OR for Pre-ICU MTK exposure was 0.591 (i.e., $\text{Exp}(\beta_1)=0.591$). In patients with myocardial infarction, the OR for Pre-ICU MTK exposure was 2.004 (i.e., $\text{Exp}(\beta_1+\beta_3)=2.004$).

Table S3: Interaction Models of Exposure and Myocardial Infarction

Variable	Coefficient	Standard Error	OR (95% CI)	p-value
Pre-ICU MTK exposure	β_1 : -1.438	0.507	0.237 (0.088-0.641) ^c	0.005 ^a
Race(whites)	β_2 : -0.881	0.336	0.414 (0.214-0.801)	0.009 ^a
Race(other)	β_3 : -0.871	0.450	0.419 (0.173-1.012)	0.053 ^a
Interaction item(whites)	β_4 : 1.284	0.566	-	0.023 ^b
Interaction item(other)	β_5 : 1.732	0.691	-	0.012 ^b

Other covariates: age, gender, type of icu, SAPSII, SOFA, CCI, myocardial infarction, cerebrovascular disease, dementia, severe liver disease, and diabetes. Race was transformed into a dummy variable and black patients were used as a reference.

^aA p-value less than 0.05 indicates a significant effect of the corresponding variable on the dependent variable (delirium), otherwise is no significant effect.

^bThe coefficients of the interaction terms (β_4 and β_5) had a p-value <0.05 and the signs of β_4 and β_5 were opposite to that of β_1 , suggesting that race significantly attenuates the association between pre-ICU MTK exposure and delirium during hospitalization.

^cIn black patients, the OR for Pre-ICU MTK exposure was 0.237 (i.e., $\text{Exp}(\beta_1)=0.237$). For patients of white race and those of other races, the ORs of pre-ICU MTK exposure were 0.857 (i.e., $\text{Exp}(\beta_1+\beta_4)=0.857$) and 1.342 (i.e., $\text{Exp}(\beta_1+\beta_5)=1.342$) respectively.