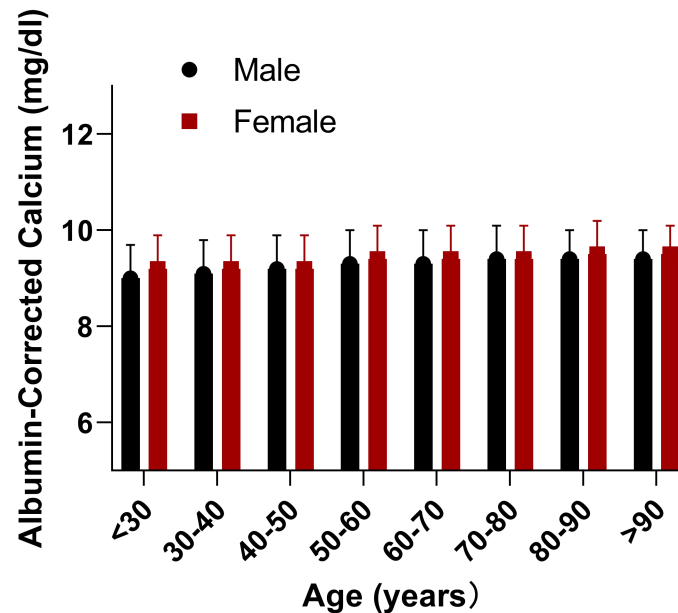


Supplementary Materials

Supplementary Figure 1: Histogram depicting mean albumin-corrected calcium levels layered according to sex and age categories



No. of participants

Male 2330 2600 4059 7895 9787 10293 8410 2384

Female 2324 2999 5320 10609 13214 11742 7540 1565

Supplementary Table 1: Univariate analysis of 30-days In-hospital mortality

30-days In-hospital mortality	Statistics	OR (95%CI)	P-value
Age, years	63.7 ± 16.9	1.0 (1.0, 1.0)	<0.001
Gender			
Male	55313 (53.7%)	Ref.	
Female	47758 (46.3%)	1.0 (0.9, 1.0)	0.241

BMI	27.7 ± 7.7	1.0 (1.0, 1.0)	<0.001
Ethnicity			
Black	11820 (11.6%)	Ref.	
Asian	1874 (1.8%)	1.1 (1.0, 1.4)	0.151
Caucasian	78205 (76.5%)	1.1 (1.0, 1.2)	0.001
Hispanic	4241 (4.2%)	1.2 (1.0, 1.4)	0.009
White	820 (0.8%)	1.0 (0.8, 1.3)	0.993
Other	5213 (5.1%)	1.0 (0.9, 1.1)	0.713
APACHE-IV score	46.6 ± 13.9	1.1 (1.1, 1.1)	<0.001
Diabetes mellitus	11909 (11.6%)	1.1 (1.0, 1.2)	0.007
Ketoacidosis	3470 (3.4%)	0.2 (0.2, 0.3)	<0.001
Hypertension	14015 (13.6%)	0.8 (0.8, 0.9)	<0.001
Acute respiratory failure	16489 (16.0%)	3.6 (3.4, 3.8)	<0.001
COPD	8211 (8.0%)	1.2 (1.1, 1.3)	<0.001
Acute Myocardial Infarction	5761 (5.6%)	1.1 (1.0, 1.3)	0.004
Atrial fibrillation	9303 (9.0%)	1.9 (1.8, 2.1)	<0.001
Cardiac arrest	3007 (2.9%)	9.6 (8.9, 10.4)	<0.001
Congestive heart failure	9564 (9.3%)	1.5 (1.4, 1.6)	<0.001
Gastrointestinal bleeding	2009 (1.9%)	1.0 (0.9, 1.2)	0.603
CKD	1430 (1.4%)	1.6 (1.3, 1.8)	<0.001
ESRD	3288 (3.2%)	1.4 (1.2, 1.6)	<0.001

Sepsis	16289 (15.8%)	2.2 (2.1, 2.3)	<0.001
Stroke	5825 (5.7%)	1.8 (1.7, 2.0)	<0.001
Cancer	1564 (1.5%)	2.0 (1.7, 2.3)	<0.001
Hemoglobin	12.1 ± 2.6	0.9 (0.9, 0.9)	<0.001
Platelet count	226.9 ± 93.6	1.0 (1.0, 1.0)	<0.001
Serum albumin	3.3 ± 0.7	0.4 (0.4, 0.4)	<0.001
Serum creatinine	1.7 ± 2.0	1.1 (1.0, 1.1)	<0.001
Serum magnesium	1.9 ± 0.4	1.3 (1.2, 1.3)	<0.001
Cholesterol	150.1 ± 47.4	1.0 (1.0, 1.0)	<0.001
Triglyceride	139.9 ± 103.1	1.0 (1.0, 1.0)	0.023
ALT	42.2 ± 68.1	1.0 (1.0, 1.0)	<0.001
PH	7.4 ± 0.1	0.2 (0.1, 0.2)	<0.001
Lactate	2.4 ± 1.8	1.2 (1.2, 1.2)	<0.001
Mechanical Ventilation	24772 (24.0%)	4.3 (4.1, 4.5)	<0.001
Nitroglycerin	2892 (2.8%)	0.5 (0.4, 0.6)	<0.001
Glucocorticoids	6393 (6.2%)	1.5 (1.3, 1.6)	<0.001
Vancomycin	5873 (5.7%)	2.2 (2.0, 2.3)	<0.001
Cabapenem	1086 (1.1%)	2.5 (2.1, 2.9)	<0.001
Levofloxacin	2863 (2.8%)	1.7 (1.5, 1.9)	<0.001

Abbreviations: CI, confidence interval; OR, odds ratio; BMI: Body Mass Index; APACHE-IV score: Acute Physiology And Chronic Health Evaluation-IV score;

COPD: Chronic Obstructive Pulmonary Diseases;CKD:Chronic kidney disease; ESRD:End Stage Renal Disease;
ALT: alanine aminotransferase.

Supplementary Table 2: Relationship between albumin-corrected calcium(mg/d) and 30-days In-hospital mortality in different sensitivity analyses.

Variable	Model I (OR,95%CI,P)	Model II (OR,95%CI,P)
Alb-Ca (mg/d)	1.1 (1.0, 1.1) 0.005	1.1 (1.0, 1.1) 0.013
Alb-Ca(tertiles)		
<7.5	1.0 (0.7, 1.4) 0.962	0.9 (0.6, 1.3) 0.560
≥7.5, < 8.5	1.2 (1.0, 1.3) 0.023	1.1 (1.0, 1.3) 0.043
≥8.5, < 9.5	Ref	Ref
≥9.5, < 10.3	1.1 (1.0, 1.1) 0.086	1.0 (1.0, 1.1) 0.236
≥10.3, < 12	1.2 (1.1, 1.3) <0.001	1.2 (1.1, 1.3) 0.001
≥12	2.0 (0.9, 4.4) 0.074	2.4 (1.1, 5.0) 0.021
P for trend	0.002	0.011

Model I was sensitivity analysis after excluding those with cancer. we adjust age; gender; BMI; Ethnicity; Cardiac arrest; Gastrointestinal bleeding; Diabetes mellitus; Lactic acid; ALT; Serum albumin.

Model II was sensitivity analysis after excluding ESRD patients. we adjust age; gender; BMI; Ethnicity; Cardiac arrest; Gastrointestinal bleeding; Diabetes mellitus; Cancer; Lactic acid; ALT; Serum albumin.

Abbreviations: OR:odds ratio; CI: confidence interval; Ref: reference; Alb-Ca: Albumin-corrected calcium; ALT: glutamic pyruvic transaminase.