Supplementary Table 1： Baseline demographics and clinical characteristics of study population (*N*=36).

	Infusion dose of remimazolam besylate (mg • kg^{-1} • h^{-1})		
Variables	**0.100 (*n* = 12)**	**0.125 (*n* = 12)**	**0.150 (*n* = 12)**
Male	7 (58.3)	7 (58.3)	9 (75.0)
Age, years	52.6±13.5	58.2±11.7	55.1±16.0
Weight, kg	58.9±8.2	62.7±8.9	62.9±14.1
APACHE II score	7.3±3.1	8.6±4.2	7.8±3.4
Duration of remimazolam besylate infusion, h	10.8±1.7	11.4±2.4	11.7±1.8
Duration of mechanical ventilation, h	14.5 [12.3, 19.8]	17.5 [13.0, 19.8]	14.5 [13.0, 15.8]
ICU length of stay, h	21.5 [15.3, 34.3]	19.5 [14.0, 22.0]	18.5 [16.3, 23.5]
Medical history			
Hypertension	2 (16.7)	5 (41.7)	3 (25.0)
Coronary artery disease	1 (8.3)	2 (16.7)	2 (16.7)
Valvular heart disease	1 (8.3)	1 (8.3)	1 (8.3)
Arrhythmia	1 (8.3)	2 (16.7)	1 (8.3)
Diabetes mellitus	0 (0.0)	1 (8.3)	1 (8.3)
COPD	0 (0.0)	1 (8.3)	2 (16.7)
Cerebrovascular disease	0 (0.0)	1 (8.3)	1 (8.3)
Cancer	2 (16.7)	1 (8.3)	5 (41.7)
Autoimmune disease	2 (16.7)	1 (8.3)	0 (0.0)
Liver dysfunction	1 (8.3)	1 (8.3)	0 (0.0)
Surgical site			
Upper abdomen	1 (8.3)	0 (0.0)	1 (8.3)
Lower abdomen	4 (33.3)	2 (16.7)	3 (25.0)
Spine and extremity	6 (50.0)	7 (58.3)	7 (58.3)
Urinary system	1 (8.3)	1 (8.3)	1 (8.3)
Others	0 (0.0)	2 (16.7)	0 (0.0)

Data are presented as mean ± standard deviation, median [interquartile range] or *n* (%). APACHE II: acute physiology and chronic health evaluation II; COPD: chronic obstructive pulmonary disease.

Supplementary Table 2: Baseline laboratory tests and arterial blood gases of study population (*N*=36).

Variables	Normal range	Infusion dose of remimazolam besylate (mg •kg^{-1} •h^{-1})		
		0.100 (*n* = 12)	0.125 (*n* = 12)	0.150 (*n* = 12)
Laboratory tests				
Hemoglobin, g/L	130 – 175	98.1 (22.5)	103.3 (29.3)	103.6 (22.0)
Leucocytes, × 10^9 /L	3.5 – 9.5	10.1 (3.0)	9.7 (5.0)	10.5 (4.0)
Platelets, × 10^9 /L	125 – 350	180.8 (76.4)	193.5 (101.1)	228.9 (118.3)
Alanine aminotransferase, U/L	21 – 72	32.5 [21.3, 89.5]	29.0 [22.8, 36.5]	32.0 [24.0, 73.5]
Total bilirubin, μmol/L	3 – 22	16.2 [11.9, 20.6]	8.4 [6.6, 12.1]	16.1 [11.3, 18.8]
Serum creatinine, μmol/L	58 – 110	48.5 (18.2)	64.2 (14.4)	59.2 (17.8)
Prothrombin time, s	11 – 16	15.4 (1.3)	14.9 (1.3)	15.1 (1.0)
APTT, s	28.0 – 43.5	39.4 (5.1)	38.5 (6.1)	38.3 (3.4)
Fibrinogen, g/L	2.0 – 4.0	3.5 (1.3)	3.2 (1.8)	3.1 (1.4)
Creatine kinase MB, ng/mL	<6.6	2.6 [1.4, 9.4]	1.7 [1.0, 2.3]	5.1 [1.4, 9.2]
Hypersensitive troponin I, ng/L	<26.2	4.6 [2.4, 9.9]	2.6 [1.7, 7.5]	8.5 [4.0, 13.3]
Arterial blood gases				
PH	7.35 – 7.45	7.40 (0.07)	7.39 (0.07)	7.35 (0.06)
PaO_2/FiO_2	400 – 500	307 [283, 443]	353 [203, 513]	322 [290, 378]
$PaCO_2$, mm Hg	35 – 45	38.6 (8.2)	40.5 (8.6)	41.3 (7.0)
Lactate, mmol/L	0.5 – 1.6	1.3 [0.8, 1.9]	1.2 [0.8, 2.1]	1.2 [0.9, 2.4]

Data are presented as mean (standard deviation) or median [interquartile range]. APTT: Activated partial thromboplastin time; PaO_2: partial pressure of oxygen; FiO_2: fraction of inspired oxygen; $PaCO_2$: partial pressure of carbon dioxide.

Supplementary Table 3: Requirement for propofol during remimazolam besylate infusion.

Variables	Infusion dose of remimazolam besylate (mg • kg^{-1} • h^{-1})		
	0.100 (*n* = 12)	0.125 (*n* = 12)	0.150 (*n* = 12)
Ever	6 (50.0)	3 (25.0)	3 (25.0)
Bolus only	2 (16.7)	2 (16.7)	0 (0.0)
Continuous infusion	4 (33.3)	1 (8.3)	3 (25.0)

Data are presented as *n* (%).

Supplementary Table 4: Incidence of adverse events during remimazolam besylate infusion.

Adverse event	Total (*n* = 36)	Infusion dose of remimazolam besylate (mg •kg^{-1} •h^{-1})		
		0.100 (*n* = 12)	0.125 (*n* = 12)	0.150 (*n* = 12)
Hypotension	9	2	4	3
Bradycardia	1	0	0	1
Tachycardia	6	4	0	2
Nausea	1	1	0	0
Vomiting	1	0	1	0