Additional file 2: Early-GV sensitivity analysis

Table S2. Joint early-GV and LogSII categories and mortality

Group	Unadjusted		Model I		Model II		Model III	
	HR (95% CI)	*P*	HR (95% CI)	*P*	HR (95% CI)	*P*	HR (95% CI)	*P*
28-day mortality								
Group 1	1	Ref	1	Ref	1	Ref	1	Ref
Group 2	1.75 (1.49–2.06)	<0.001	1.73 (1.47–2.03)	<0.001	1.53 (1.30–1.80)	<0.001	1.55 (1.32–1.83)	<0.001
Group 3	1.72 (1.46–2.02)	<0.001	1.67 (1.42–1.96)	<0.001	1.68 (1.42–1.99)	<0.001	1.37 (1.15–1.62)	<0.001
Group 4	2.40 (2.02–2.85)	<0.001	2.27 (1.91–2.71)	<0.001	2.04 (1.71–2.45)	<0.001	1.78 (1.49–2.14)	<0.001
ICU mortality								
Group 1	1	Ref	1	Ref	1	Ref	1	Ref
Group 2	1.50 (1.23–1.84)	<0.001	1.53 (1.25–1.87)	<0.001	1.42 (1.15–1.74)	<0.001	1.48 (1.20–1.82)	<0.001
Group 3	1.63 (1.33–1.99)	<0.001	1.57 (1.28–1.92)	<0.001	1.59 (1.29–1.95)	<0.001	1.35 (1.09–1.67)	0.007
Group 4	2.05 (1.65–2.55)	<0.001	1.97 (1.58–2.45)	<0.001	1.87 (1.50–2.34)	<0.001	1.71 (1.36–2.16)	<0.001

Values are HRs (95% CIs). Ref identifies the reference group; no CI or *P* value is estimated for this group. *P* values are two-sided Wald tests without multiplicity adjustment.

High denotes the highest tertile; low denotes the lower two tertiles. Group 1: low GV/low LogSII; Group 2: low GV/high LogSII; Group 3: high GV/low LogSII; Group 4: high GV/high LogSII. Every HR compares the indicated group with Group 1. Group sizes were 2541, 1154, 1148, 700, respectively.

GV was recalculated as 100 times the sample standard deviation divided by the mean of positive chemistry glucose values collected from ICU admission through 72 h or earlier ICU discharge/death. At least three measurements were required. The early-GV upper-tertile threshold was 25.0413%; the main-cohort LogSII threshold (7.946933) was retained. Unrounded thresholds were used; values equal to a threshold remained in the lower category. Early GV was winsorized at the first and 99th percentiles; this did not change tertile assignments.

Model I: age and sex. Model II: Model I plus mean blood pressure, heart rate, respiratory rate, peripheral oxygen saturation, temperature, diabetes mellitus, hypertension, heart failure, cerebrovascular disease, and chronic obstructive pulmonary disease. Model III: Model II plus hemoglobin, creatinine, blood urea nitrogen, lactate, SOFA, and insulin use.

The 28-day analysis used time from first ICU admission to all-cause death or day 28; ICU discharge did not censor this endpoint. The ICU analysis used time to documented in-ICU death or live ICU discharge. Cox models used Efron handling of ties.

For Model III, joint-category Schoenfeld tests gave $P = 0.081$ (28-day) and $P = 0.002$ (ICU); global tests gave $P < 0.001$ and $P = 0.003$, respectively. HRs summarize follow-up associations, not necessarily constant effects or admission-time prediction.

CI, confidence interval; GV, glycemic variability; HR, hazard ratio; ICU, intensive care unit; LogSII, natural logarithm of the systemic immune-inflammation index; SOFA, Sequential Organ Failure Assessment.