

Supplementary Table 1 An overview of others definitions used in this study

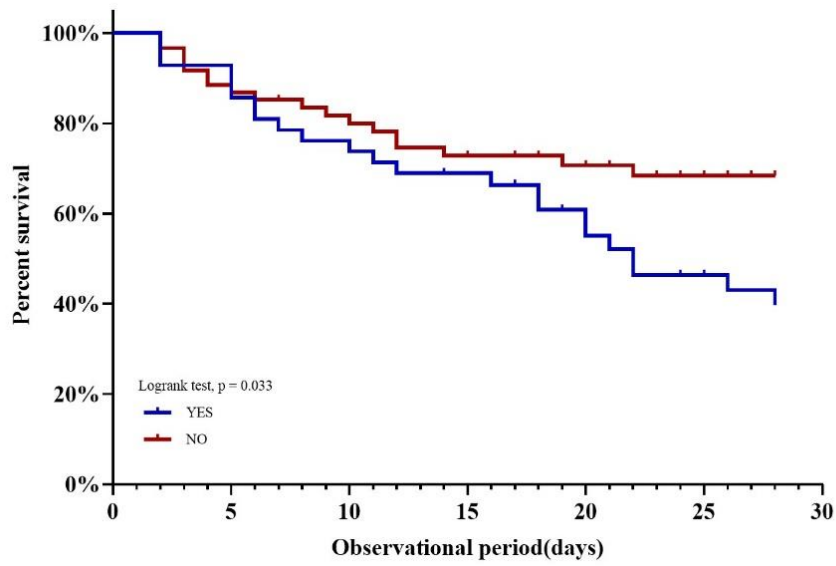
Variable	Definition
Sepsis	An increase in the SOFA score of 2 points or more in response to infection[1].
IAH	After admission to ICU, serum sodium concentration >145 mmol/L[2].
Non-IAH	Serum sodium concentration >145 mmol/L before admission to ICU[3].
SAE	(1) Septic shock occurs in patients with a GCS of less than 15 or delirium; (2) No brain inflammation or organic brain disease[4].
Septic shock	Septic shock more specifically as sepsis in addition to shock requiring the start of vasopressors to maintain a mean arterial pressure 65 mm Hg or greater, and a serum lactate level greater than 2.0 mmol/L following “adequate fluid resuscitation”[1].
AKI	Stage 1: Increase in SCr by 1.5-1.9 times baseline; or increase in sSCr by ≥ 0.3 mg/dL (≥ 26.5 μ mol/L); or urine output < 0.5 mL/kg/h for 6-12 hours; Stage 2: Increase in SCr by 2.0-2.9 times baseline; or urine output < 0.5 mL/kg/h for ≥ 12 hours; Stage 3: Increase in SCr by 3.0 times baseline; or increase in SCr to 4.0 mg/dL (353.6 μ mol/L); or initiation of renal replacement therapy; or in patients < 18 years, decrease in GFR to 35 mL/min/1.73 m ² ; or urine output < 0.3 mL/kg/h for ≥ 24 hours; or anuria for ≥ 12 hours[5].
SIRS	The satisfaction of any two of the criteria below: (1) Body temperature over 38 or under 36 degrees Celsius; (2) Heart rate greater than 90 beats/minute; (3) Respiratory rate greater than 20 breaths/minute or partial pressure of CO ₂ less than 32 mmHg; (4) Leukocyte count greater than 12000 or less than 4000 /microliters or over 10% immature forms or bands[6].

Abbreviations: IAH, ICU-acquired hypernatremia; ICU, intensive care unit; SAE, sepsis-associated encephalopathy; AKI, acute kidney injury; SIRS, systemic inflammatory response syndrom; SOFA, sequential organ failure assessment; GCS, glasgow coma score; SCr, serum creatinine; GFR, glomerular filtration rate.

References

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Supplementary Figure 1 The 28-day mortality of CRRT for the treatment of hypernatremia for septic shock patients. Abbreviations: CRRT, continuous renal replacement therapy.



Supplementary Table 2 Mortality outcomes of patients with septic shock

A. Effects of IAH, non-IAH and normonatremia on 28-day in-hospital mortality

	All (n = 157)	IAH (n = 62)	non-IAH (n = 41)	normonatremia (n = 54)
7-day mortality, n (%)	27 (17.20)	8 (12.90)	10 (24.39)	9 (16.67)
14-day mortality, n (%)	43 (27.39)	13 (20.97)	16 (39.02)	14 (25.93)
28-day mortality, n (%)	58 (36.94)	20 (32.26)	21 (51.22)	17 (31.48)

B. Effects of different maximum serum sodium on 28-day in-hospital mortality

	All (n = 103)	145<a≤150 mmol/L (n = 19)	150<a≤155 mmol/L (n = 28)	155<a≤160 mmol/L (n = 23)	160<a≤165 mmol/L (n = 16)	a>165 mmol/L (n = 17)
7-day mortality, n (%)	18 (17.48)	6 (31.58)	4 (14.29)	5 (21.74)	1 (6.25)	2 (11.76)
14-day mortality, n (%)	29 (28.16)	8 (42.11)	8 (28.57)	6 (26.09)	2 (12.50)	5 (29.41)
28-day mortality, n (%)	41 (39.81)	11 (57.89)	9 (32.14)	11 (47.83)	2 (12.50)	8 (47.06)

C. Effects of different duration of hypernatremia on 28-day in-hospital mortality

	All (n = 157)	b≤10 days (n = 125)	10<b≤20 days (n = 20)	b>20 days (n = 12)
7-day mortality, n (%)	27 (17.20)	27 (21.60)	0 (0)	0 (0)
14-day mortality, n (%)	43 (27.39)	41 (32.80)	2 (10.00)	0 (0)
28-day mortality, n (%)	58 (36.94)	51 (40.80)	4 (20.00)	3 (25.00)

D. Effects of different sodium correction rate on 28-day in-hospital mortality

	All (n = 102)	c<3 mmol/L*24h (n = 20)	3≤c<6 mmol/L*24h (n = 40)	6≤c<9 mmol/L*24h (n = 16)	9≤c <11 mmol/L*24h (n = 4)	11≤c<15 mmol/L*24h (n = 11)	c≥15 mmol/L*24h (n = 11)
7-day mortality, n (%)	18 (17.65)	3 (15.00)	5 (12.5)	5 (31.25)	0 (0)	2 (18.18)	3 (27.27)
14-day mortality, n (%)	29 (28.43)	4 (20.00)	8 (20.00)	6 (37.50)	0 (0)	5 (45.45)	6 (54.55)
28-day mortality, n (%)	41 (40.20)	6 (30.00)	10 (25.00)	11 (68.75)	1 (25.00)	7 (63.60)	6 (54.55)

Abbreviations: IAH, ICU-acquired hypernatremia; a, maximum serum sodium; b, duration of hypernatremia; c, sodium correction rate per 24h.