

Table S1 Correlation analysis of sTfR and preoperative laboratory markers

Variables	Coefficient	P value
Age (days)	0.073	0.27
Weight (kg)	0.084	0.20
BSA (m ²)	0.077	0.24
SI (μmol/L)	-0.66	<0.001
SF (μg/L)	-0.42	<0.001
TAST (g/L)	-0.75	<0.001
TIBC (μmol/L)	0.410	<0.001
Hb (g/L)	-0.210	0.001
Hematocrit (L/L)	-0.089	0.17
hs-CRP (mg/L)	0.100	0.11
ALT (IU/L)	-0.210	0.001
AST (IU/L)	0.030	0.64
Albumin (g/L)	0.054	0.41
Creatinine (μmol/L)	0.026	0.69
Blood urea nitrogen (mmol/L)	-0.180	0.005
Total bilirubin (μmol/L)	0.130	0.041
Direct bilirubin (μmol/L)	0.120	0.056
Platelet count (×10 ⁹ /L)	0.020	0.76

Correlation test using Spearman's rank correlation. sTfR, soluble transferrin receptor; BSA, body surface area; SI, serum iron; SF, serum ferritin; TAST, transferrin saturation; TIBC, total iron binding capacity; Hb, hemoglobin; hs-CRP, hypersensitive C-reactive protein; ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Table S2 The accuracy of iron biomarkers for predicting perioperative higher volume RBC transfusion in low weight pediatric cardiac surgery

Variables	AUC	95% CI	Cut-off	Sensitivity	Specificity
SF (μg/L)	0.537	0.405–0.669	≤81.50	0.448	0.768
TIBC (μmol/L)	0.563	0.446–0.681	≥65.46	0.379	0.792
SI (μmol/L)	0.632	0.532–0.733	≤11.58	0.828	0.430
TAST (%)	0.632	0.536–0.729	≤20.89	0.828	0.425
sTfR (μmol/L)	0.643	0.531–0.756	≥17.53	0.586	0.739

RBC, red blood cell; AUC, area under the curve; CI, confidence interval; SF, serum ferritin; TIBC, total iron binding capacity; SI, serum iron; TAST, transferrin saturation; sTfR, soluble transferrin receptor.

Table S3 Correlation analysis between transferrin and other outcomes

Outcomes	P value
ICU time	0.52
Ventilation time	0.83
Length of hospital stay	0.24
AKI	0.22
Mortality	>0.99

Nonparametric tests were used for AKI and mortality; Spearman tests were used in ICU time, ventilation time, and length of hospital stay. ICU, intensive care unit; AKI, acute kidney injury.

Table S4 Sensitivity analyses of sTfR concentrations with higher volume transfusion

Outcomes	Categorical models		Continuous models	
	OR (95% CI)	P value	OR (95% CI)	P value
Excluding infants with postoperative bleeding (n=27)				
Model 1	4.286 (1.654–11.103)	0.003	1.040 (1.012–1.068)	0.005
Model 2	4.508 (1.683–12.070)	0.003	1.048 (1.015–1.083)	0.004
Model 3	11.660 (2.936–46.280)	<0.001	1.080 (1.018–1.146)	0.010
Excluding infants with prolonged hospitalization, extended ventilation, and those requiring secondary ICU admission (n=19)				
Model 1	6.143 (2.130–20.262)	0.001	1.038 (1.010–1.070)	0.007
Model 2	6.656 (2.208–23.006)	0.001	1.047 (1.016–1.085)	0.005
Model 3	14.889 (3.775–78.509)	<0.001	1.075 (1.029–1.135)	0.005
Excluding infants with severe hemolysis after CPB (n=69)				
Model 1	17.538 (4.529–115.948)	<0.001	1.051 (1.020–1.091)	0.003
Model 2	22.105 (5.305–155.120)	<0.001	1.059 (1.025–1.104)	0.002
Model 3	61.382 (6.806–2,153.321)	0.002	1.095 (1.034–1.174)	0.004

sTfR, soluble transferrin receptor; OR, odds ratio; CI, confidence interval; ICU, intensive care unit; CPB, cardiopulmonary bypass.