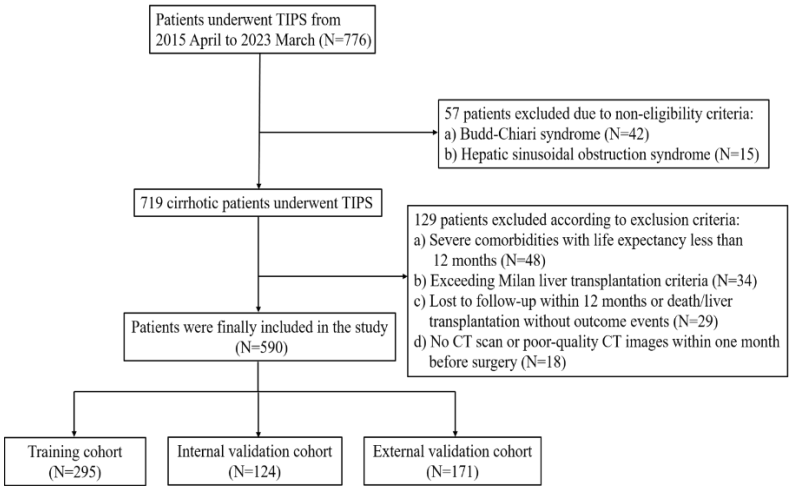
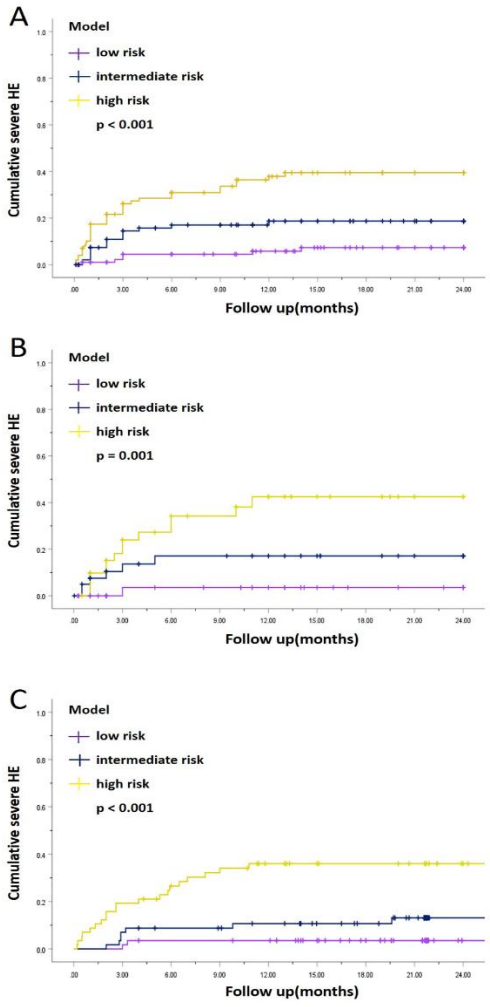


Supplementary Figure 1 Flowchart of patient selection.



Supplementary Figure 2 The study population was stratified into low-risk, intermediate-risk, and high-risk groups based on the total nomogram scores

divided into tertiles. The first tertile corresponded to the low-risk group, the second tertile to the intermediate-risk group, and the third tertile to the high-risk group. KM survival curves for the risk groups demonstrated significant differences in the cumulative incidence of post-TIPS SHE across all cohorts. A: Training cohort; B: Internal validation cohort; C: External validation cohort.

Supplementary Table 1 Comparison of regression coefficients between the Cox model and Fine-Gray model

Variable	Cox model hazard ratio (95%CI)	Fine-Gray model subdistribution hazard ratio (95%CI)	Relative difference (%)
FIPS score	1.753 (1.266–2.428)	1.721 (1.240–2.391)	3.2%
Sarcopenia	2.722 (1.596–4.641)	2.689 (1.578–4.512)	3.3%
Myosteatosis	1.921 (1.114–3.312)	1.884 (1.102–3.215)	3.7%

Sensitivity analysis was performed using the Fine-Gray subdistribution hazard model (cmprsk 2.2.12 package) to compare the hazard ratio (HR) from the Cox model with the subdistribution hazard ratio (SHR) from the Fine-Gray model. The relative difference was calculated using the formula: |HR – SHR|/HR × 100%. The maximum relative difference between HR and SHR was less than 5%, with all variables showing consistent effect directions and highly overlapping confidence intervals.

Supplementary Table 2 Incidence of severe hepatic encephalopathy across three risk groups in different cohorts

Cohort/risk group	Number of patients (*n*)	Severe hepatic encephalopathy cases (*n*)	Percentage (%)
Training cohort			
Low risk	98	6	6.1
Intermediate risk	98	16	16.3

High risk	99	35	35.4
Internal validation cohort			
Low risk	41	1	2.4
Intermediate risk	41	6	14.6
High risk	42	14	33.3
External validation cohort			
Low risk	57	2	3.5
Intermediate risk	57	7	12.3
High risk	57	21	36.8