Supplementary Figure 1 Prediction performance of RFM model *via* CIC. A. Training set; B: Validation set. The blue line predicts the probability of pain, and the black line shows the possibility that the patient is at high risk of pain.

Supplementary Table 1 The candidate variables screening associated with recurrence *via* RFM algorithm

Variables	Mean decrease accuracy	Mean decrease Gini
Age	44.39161	15.85248
Gender	1.369869	0.280531
BMI	-1.71274	1.465098
Pathogeny	-0.78831	0.529299
ECOG	-1.83649	0.141004
TACE	-0.69814	0.189531
HHS	-0.89673	0.156129
PrP	44.78931	31.36941
MDT	-1.58449	0.144049
LOET	0.33131	0.238036
NOET	33.5873	23.36902
PVTT	-2.95271	0.19155
DFLS	39.10821	13.21295
CTPG	0.530875	0.191934
OpD	0.646972	0.252549

ES	-1.30438	0.224403
LOD	21.90535	4.746211
Albumin	-1.06163	1.634348
PT	-0.00154	1.152744
PTA	111.4537	66.80037
TBIL	-1.33582	1.354661
ALT	-0.06818	1.476235
AST	0.918645	1.543074
PLT	2.644987	1.95597

BMI: Body mass index; ECOG: Eastern cooperative oncology group; HHS: History of hepatobiliary surgery; PrP: Preoperative_pain; MTD: Maximum tumor diameter; LOET: Location of embolized tumor; NOET: Number of embolized tumors; PVTT: Portal vein tumor thrombus; DFLS: Distance from liver capsule; CTBG: Child-pugh grade; OpD: Operation_duration; ES: Embolization supplement; LOD: Iodine oil dosage; PT: Prothrombin time; PTA: Prothrombin activity; TBIL: Total bilirubin; ALT: Alanine aminotransferase; AST: Aspartate aminotransferase; PLT: Platelet count.