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| **Table S1. Baseline characteristics of the validation cohort** | | | |
| Characteristic | HBV-ACLF (*n* = 94) | | *P* |
| Survivors (*n* = 59) | Nonsurvivors (*n* = 35) |
| Age, years | 45.1 ± 12.6 | 49.2 ± 11.5 | 0.119 |
| Male sex | 51 (86.4) | 29 (82.9) | 0.071 |
| BMI (kg/m2) | 23.9 ± 3.6 | 24.8 ± 4.0 | 0.318 |
| Liver cirrhosis | 29 (49.2) | 24 (68.6) | 0.066 |
| Complications |  |  |  |
| Gastrointestinal hemorrhage | 1 (1.7) | 2 (5.7) | 0.284 |
| Ascites | 29 (49.2) | 28 (80.0) | 0.003 |
| Infection | 23 (39.2) | 29 (82.9) | <0.001 |
| HE |  |  |  |
| I-II | 10 (16.9) | 10 (28.6) | 0.096 |
| III-IV | 2 (3.4) | 4 (11.4) |  |
| Laboratory data |  |  |  |
| ALT (U/L) | 260 (117, 645) | 289 (87, 689) | 0.851 |
| AST (U/L) | 157 (98, 340) | 284 (89, 434) | 0.287 |
| ALP (U/L) | 138 (121, 164) | 159 (128, 184) | 0.072 |
| Albumin (g/dL) | 31.6 ± 4.1 | 30.6 ± 4.4 | 0.271 |
| TB (μmol/L) | 300.3 ± 113.3 | 379.2 ± 118.8 | 0.002 |
| TBA (µmol/L) | 261.3 ± 111.6 | 265.4 ± 112.6 | 0.864 |
| GGT (U/L) | 84 (63, 118) | 78 (50, 115) | 0.215 |
| Creatinine (μmol/L) | 64 (57,73) | 64 (54,75) | 0.903 |
| BUN (mmol/L) | 3.8 (3.1, 4.4) | 4.4 (3.2, 6.2) | 0.043 |
| Triglycerides (mmol/L) | 1.3 (1.0, 1.9) | 1.01 (0.91, 1.36) | 0.003 |
| Uric acid (µmol/L) | 152.3 ± 50.5 | 120.6 ± 68.9 | 0.012 |
| Cholesterol (mmol/L) | 2.5 ± 1.1 | 2.0 ± 0.6 | 0.020 |
| White blood cell count (109/L) | 6.8 ± 2.9 | 9.0 ± 3.7 | 0.002 |
| Neutrophil count (109/L) | 4.6 ± 2.5 | 6.6 ± 3.5 | 0.002 |
| Hemoglobin (g/L) | 126.2 ± 19.6 | 121.7 ± 19.7 | 0.284 |
| Platelet count (109/L) | 111.7 ± 52.1 | 103.1 ± 52.0 | 0.442 |
| INR | 1.8 (1.5,2.3) | 2.7 (2.3,3.2) | <0.001 |
| Lg (DNA) | 5.4 ± 1.7 | 5.0 ± 1.6 | 0.405 |
| Ferritin (ng/mL) | 2317.0 (1201.9, 4089.6) | 2921.4 (1608.1, 6848.9) | 0.172 |
| AFP (ng/mL) | 106.9 (26.1, 272.8) | 29.2 (11.6, 112) | 0.016 |
| Sodium (mmol/L) | 138.9 ± 2.3 | 137.5 ± 3.9 | 0.030 |
| Serum ammonia | 54.9 ± 29.2 | 70.6 ± 42.1 | 0.053 |
| Blood glucose (mmol/L) | 4.12 (3.49, 4.97) | 4.21 (3.05, 5.36) | 0.790 |
| Hypoglycemia | 4 (6.8) | 7 (20.0) | 0.111 |
| 1,5AG (ug/mL) | 31.6 ± 11.4 | 22.5 ± 7.2 | <0.001 |
| Organ failure (no.) |  |  |  |
| Liver | 44 (74.6) | 32 (91.4) | 0.045 |
| Coagulation | 6 (10.2) | 20 (57.1) | <0.001 |
| Kidney | 0 (0.0) | 0 (0.0) |  |
| Brain | 2 (3.4) | 4 (11.4) | 0.123 |
| Lung | 0 (0.0) | 0 (0.0) |  |
| Circulation | 0 (0.0) | 0 (0.0) |  |
| Severity score |  |  |  |
| MELD | 21.1 ± 3.6 | 26.4 ± 4.4 | <0.001 |
| MELD-Na | 21.2 ± 3.6 | 27.5 ± 5.7 | <0.001 |
| iMELD | 37.4 ± 6.1 | 44.9 ± 6.6 | <0.001 |
| CLIF-C ACLFs | 37.6 ± 6.3 | 45.8 ± 5.8 | <0.001 |
| COSSH-ACLFs | 4.9 ± 0.5 | 5.8 ± 0.7 | <0.001 |
| HBV-ACLF (COSSH criteria) |  |  |  |
| ACLF grade 1 | 53 (89.8) | 17 (48.6) | <0.001 |
| ACLF grade 2 | 6 (10.2) | 10 (28.6) |  |
| ACLF grade 3 | 0 (0.0) | 8 (22.9) |  |

Data are means ± standard deviation, numbers (%), or medians (interquartile range), as shown. 1,5AG, 1,5-anhydroglucitol; AFP, Alpha fetoprotein; ALP, Phosphatase alkaline; ALT, Alanine aminotransferase; AST, Aspartate aminotransferase; CLIF‐C ACLF, Chronic Liver Failure Consortium Acute‐on‐Chronic Liver Failure score; COSSH‐ACLF, Chinese Group on the Study of Severe Hepatitis B; GGT, γ-glutamyl transpeptidase; Abbreviations, HE, hepatic encephalopathy; iMELD, Integrated MELD. INR, International normalized ratio; MELD-Na, MELD sodium; MELD, Model for End‐stage Liver Disease score; TB, Total bilirubin; TBA, Total bile acid; BUN, blood urea nitrogen.