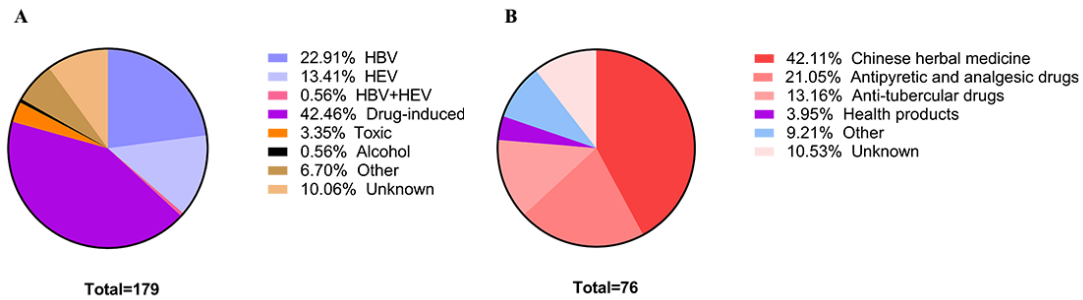
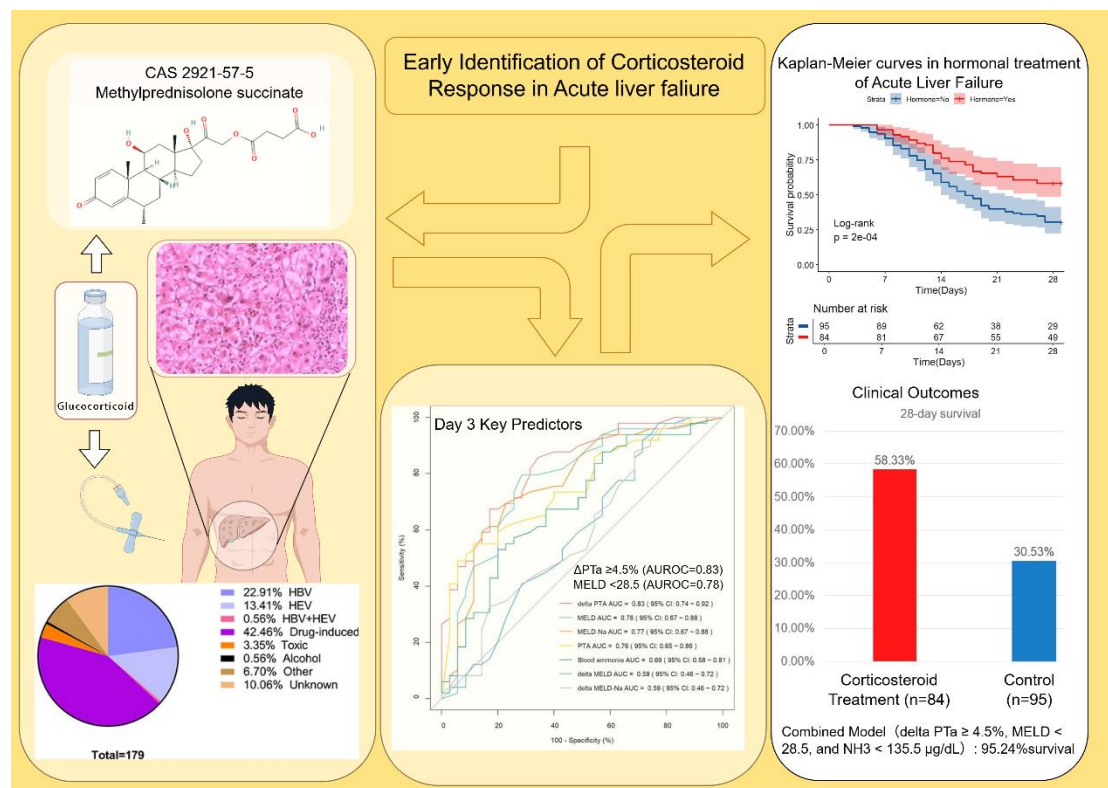


Supplementary materials



Supplementary Figure 1. Etiological analysis of 179 patients with acute liver failure; B. Classification of 76 drug-related ALFs



Supplementary Figure 2. Graphical abstract

Supplementary Table 1. Baseline characteristics of patients with ALF: comparison of corticosteroid-treatment and non-corticosteroid-treatment groups

| Parameters | Overall (n=179) | Non-corticosteroid treatment (n=95) | Corticosteroid treatment (n=84) | p value |
|------------|----------------------|-------------------------------------|---------------------------------|---------|
| Age | 44.00 [30.50, 61.00] | 55.00 [37.00, 69.50] | 38.00 [26.75, 50.00] | <0.001 |

| | | | | |
|-------------------------------|---------------------------|---------------------------|---------------------------|---------|
| Gender(Male/Female) | 90 (50.30)/89 (49.70) | 47 (49.50)/48 (50.50) | 43 (51.20)/41 (48.80) | 0.82 |
| ALT (U/L) | 1508.00 [448.50, 3328.00] | 1053.00 [364.00, 2894.40] | 1869.00 [720.78, 3601.50] | 0.03 |
| AST (U/L) | 853.00 [290.00, 2029.50] | 818.00 [290.00, 1868.00] | 880.00 [289.50, 2225.50] | 0.49 |
| TBIL(μ mol/L) | 280.20 [177.05, 375.30] | 290.40 [179.10, 432.40] | 255.85 [172.18, 346.75] | 0.21 |
| DBIL(μ mol/L) | 151.30 [98.00, 235.45] | 151.30 [104.65, 245.30] | 149.40 [90.55, 217.50] | 0.13 |
| Albumin (g/L) | 31.30 [27.20, 34.65] | 30.20 [26.55, 34.10] | 32.35 [28.80, 34.90] | 0.05 |
| UREA(mmol/L) | 4.23 [2.19, 8.04] | 4.43 [2.30, 11.30] | 4.14 [2.13, 6.61] | 0.12 |
| Cr (μ mol/L) | 69.00 [49.00, 110.07] | 74.00 [50.90, 130.00] | 62.50 [48.50, 108.14] | 0.14 |
| NH3(ug/dl) | 143.00 [97.00, 194.50] | 135.00 [95.50, 194.50] | 148.00 [110.00, 192.25] | 0.66 |
| PT(s) | 40.50 [28.60, 62.65] | 37.70 [29.55, 54.20] | 42.35 [28.20, 70.58] | 0.53 |
| PTA (%) | 19.00 [12.00, 28.00] | 20.90 [13.50, 27.60] | 17.00 [10.75, 30.85] | 0.61 |
| INR | 3.61 [2.49, 5.52] | 3.50 [2.58, 5.18] | 3.76 [2.43, 5.73] | 0.90 |
| FIB (g/L) | 1.08 [0.80, 1.48] | 1.10 [0.85, 1.44] | 1.04 [0.77, 1.55] | 0.65 |
| WBC ($10^9/L$) | 9.97 [7.34, 13.30] | 10.19 [7.62, 13.67] | 9.57 [7.29, 11.80] | 0.23 |
| NEUT ($10^9/L$) | 6.95 [5.19, 10.87] | 7.52 [5.33, 11.13] | 6.20 [5.16, 9.22] | 0.07 |
| LYM ($10^9/L$) | 1.28 [0.90, 2.08] | 1.24 [0.88, 1.88] | 1.38 [0.94, 2.27] | 0.39 |
| MONO($10^9/L$) | 0.76 [0.46, 1.12] | 0.76 [0.50, 1.14] | 0.75 [0.44, 0.99] | 0.45 |
| HGB (g/L) | 124.00 [107.50, 144.00] | 124.00 [101.50, 144.00] | 125.00 [111.00, 142.00] | 0.73 |
| PLT ($10^9/L$) | 141.00 [95.00, 197.00] | 131.00 [93.00, 198.50] | 144.45 [101.25, 196.25] | 0.39 |
| NLR | 5.52 [3.25, 8.89] | 5.97 [3.53, 9.57] | 4.84 [2.85, 7.96] | 0.09 |
| MELD | 26.00 [20.00, 33.00] | 26.00 [19.50, 33.00] | 26.50 [20.75, 33.00] | 0.77 |
| MELD-Na | 28.00 [22.00, 34.00] | 27.00 [22.50, 33.50] | 28.50 [21.75, 34.00] | 0.99 |
| 28-dayOutcome (survive/death) | 78 (43.58)/101 (56.42) | 29 (30.53)/66 (69.47) | 49 (58.33)/35 (41.67) | <0.001* |

*Adjust age

ALT, alanine transferase; AST, aspartate transferase; TBIL, total bilirubin; DBIL, direct bilirubin; Cr, creatinine; PT, Prothrombin time; PTA, prothrombin activity; INR, international normalized ratio; FIB, fibrinogen; WBC, white blood cell; NEUT, neutrophil; NH3, blood ammonia; LYM, lymphocyte; MONO, monocyte count; HGB, hemoglobin; PLT, platelet; NLR, neutrophil-lymphocyte ratio; MELD, model for end-stage liver disease.

Supplementary Table 2. Predictive indicators and efficacy analysis of glucocorticoid response in patients with acute liver failure

| Index | delta PTA | MELD | MELD-Na | PTA | Blood ammonia | delta MELD | delta MELD-Na |
|---------------------------|-----------|--------|---------|--------|---------------|------------|---------------|
| AUC | 82.83 | 77.52 | 77.14 | 75.60 | 69.33 | 58.63 | 59.04 |
| Best Cut-off Value | 4.50 | 28.50 | 28.50 | 22.85 | 135.50 | 11.00 | 5.50 |
| Sensitivity | 85.71 | 79.59 | 69.39 | 55.10 | 53.06 | 97.96 | 87.76 |
| Specificity | 65.71 | 71.43 | 77.14 | 88.57 | 80.00 | 22.86 | 31.43 |
| Negative Predictive Value | 76.67 | 71.43 | 64.29 | 58.49 | 54.90 | 88.89 | 64.71 |
| Positive Predictive Value | 77.78 | 79.59 | 80.95 | 87.10 | 78.79 | 64.00 | 64.18 |
| True Positive Rate | 85.71 | 79.59 | 69.39 | 55.10 | 53.06 | 97.96 | 87.76 |
| False Positive Rate | 34.29 | 28.57 | 22.86 | 11.43 | 20.00 | 77.14 | 68.57 |
| True Negative Rate | 65.71 | 71.43 | 77.14 | 88.57 | 80.00 | 22.86 | 31.43 |
| False Negative Rate | 14.29 | 20.41 | 30.61 | 44.90 | 46.94 | 2.04 | 12.24 |
| False Discovery Rate | 22.22 | 20.41 | 19.05 | 12.90 | 21.21 | 36.00 | 35.82 |
| Accuracy | 77.38 | 76.19 | 72.62 | 69.05 | 64.29 | 66.67 | 64.29 |
| Precision | 77.78 | 79.59 | 80.95 | 87.10 | 78.79 | 64.00 | 64.18 |
| Youden Index | 151.43 | 151.02 | 146.53 | 143.67 | 133.06 | 120.82 | 119.18 |

Supplementary Table 3. The predictive efficacy of various predictive indicators combined for survival outcomes in patients with acute liver failure after glucocorticoid response

| Group 1 | delta PTA <4.5 and MELD \geq 28.5 | delta PTA \geq 4.5 OR MELD <28.5 | delta PTA \geq 4.5 and MELD <28.5 |
|----------|---|---|---|
| survival | 0.0588 | 0.4840 | 0.9170 |
| Group 2 | delta PTA <4.5 and Blood ammonia \geq 135.5 | delta PTA \geq 4.5 OR Blood ammonia <135.5 | delta PTA \geq 4.5 and Blood ammonia <135.5 |
| survival | 0.2270 | 0.5410 | 0.9600 |
| Group 3 | MELD \geq 28.5 and Blood ammonia \geq 135.5 | MELD <28.5 OR Blood ammonia <135.5 | MELD <28.5 and Blood ammonia <135.5 |
| survival | 0.2140 | 0.7000 | 0.8460 |
| Group 4 | delta PTA <4.5 and MELD \geq 28.5 and Blood ammonia \geq 135.5 | delta PTA \geq 4.5 OR MELD <28.5 OR Blood ammonia <135.5 | delta PTA \geq 4.5 and MELD <28.5 and Blood ammonia <135.5 |
| survival | 0.0714 | 0.5710 | 0.9524 |