

SUPPORTING DOCUMENTS

Supplementary Table 1. Patient parameters stratified by spontaneous survival at day 21 (deceased/transplanted vs. transplant-free survivors).

| | Deceased/Transplanted (N = 365) | | Transplant-free Survivors (N = 704) | | P- value |
|---|------------------------------------|------------------|---|------------------|-------------|
| | N | | N | | |
| Age (years) | 365 | 38 (28-47) | 704 | 36 (28-46) | 0.06 |
| Sex (male) | 365 | 88 (24.1%) | 704 | 180 (25.6%) | 0.60 |
| King's College Criteria (days 1-7) | 365 | 128 (35.1%) | 704 | 78 (11.1%) | <0.001 |
| ALFSG Prognostic Index (admission) | | | | | |
| Survival Predicted Probability \geq 80% | 342 | 36 (10.5%) | 649 | 331 (51.0%) | <0.001 |
| Highest MELD (days 1-7) | 357 | 33.7 (28.2-38.8) | 701 | 24.0 (14.1-31.0) | <0.001 |
| Coma Grade 3/4 (days 1-7) | 353 | 323 (91.5%) | 685 | 361 (52.7%) | <0.001 |
| Organ Support (days 1-7) | | | | | |
| Mechanical Ventilation | 365 | 331 (90.7%) | 704 | 361 (51.3%) | <0.001 |
| Vasopressors | 365 | 240 (65.8%) | 704 | 137 (19.5%) | <0.001 |
| Continuous Renal Replacement Therapy | 365 | 78 (21.4%) | 704 | 96 (13.6%) | 0.001 |
| ICP Directed Therapies (days 1-7) | | | | | |
| ICP monitor | 365 | 82 (22.5%) | 704 | 55 (7.8%) | <0.001 |
| Mannitol | 365 | 123 (33.7%) | 704 | 94 (13.4%) | <0.001 |
| Barbiturate | 365 | 49 (13.4%) | 704 | 27 (3.8%) | <0.001 |
| Hypothermia | 365 | 32 (8.8%) | 704 | 36 (5.1%) | 0.020 |
| Sedatives | 365 | 282 (77.3%) | 704 | 406 (57.7%) | <0.001 |
| Blood Products (days 1-7) | | | | | |
| Red Blood Cells | 365 | 163 (44.7%) | 704 | 165 (23.4%) | <0.001 |
| Fresh Frozen Plasma | 365 | 253 (69.3%) | 704 | 245 (34.8%) | <0.001 |
| Recombinant Factor VIIA | 365 | 13 (3.6%) | 704 | 8 (1.1%) | 0.007 |
| Platelets | 365 | 125 (34.2%) | 704 | 87 (12.4%) | <0.001 |
| ICU Complications (days 1- | | | | | |

| | | | | | |
|--|-----|-------------|-----|-------------|--------|
| 7) | | | | | |
| Seizures | 365 | 47 (12.9%) | 704 | 24 (3.4%) | <0.001 |
| Arrhythmia | 365 | 109 (29.9%) | 704 | 126 (17.9%) | <0.001 |
| Gastrointestinal Bleeding | 365 | 53 (14.5%) | 704 | 41 (5.8%) | <0.001 |
| N-acetylcysteine | | | | | |
| Intravenous | 365 | 299 (81.9%) | 704 | 583 (82.8%) | 0.72 |
| Oral | 365 | 236 (64.7%) | 704 | 426 (60.5%) | 0.19 |
| Psychological Comorbidities | 365 | 188 (51.5%) | 704 | 387 (55.0%) | 0.28 |
| Depression | 307 | 130 (42.3%) | 576 | 259 (45.0%) | 0.46 |
| Schizophrenia | 182 | 5 (2.7%) | 325 | 8 (2.5%) | 0.85 |
| Chronic Pain | 178 | 1 (0.6%) | 318 | 1 (0.3%) | 0.68 |
| Bipolar Disorder | 202 | 25 (12.4%) | 391 | 74 (18.9%) | 0.043 |
| Anxiety | 212 | 35 (16.5%) | 400 | 83 (20.8%) | 0.21 |
| Overdose Intent | | | | | 0.58 |
| Intentional | 317 | 126 (39.7%) | 639 | 266 (41.6%) | |
| Unintentional | 317 | 191 (60.2%) | 639 | 373 (58.4%) | |
| Intravenous Drug Use | 359 | 23 (6.4%) | 699 | 69 (9.9%) | 0.06 |
| Intracranial Hypertension (days 1-21) | 215 | 132 (61.4%) | 321 | 71 (22.1%) | <0.001 |
| Death (days 1-21) | 342 | 273 (79.8%) | 704 | 0 (0.0%) | <0.001 |
| Cerebral Edema Death | 340 | 83 (24.4%) | 704 | 0 (0.0%) | <0.001 |
| Listed for Liver Transplantation | 365 | 157 (43.0%) | 704 | 92 (13.1%) | <0.001 |
| Received Liver Transplant (days 1-21) | 364 | 100 (27.5%) | 704 | 0 (0.0%) | <0.001 |

Abbreviations: *ALFSG*, Acute Liver Failure Study Group; *ICP*, intracranial pressure;

ICU, intensive care unit; *MELD*, model for end stage liver disease.

Supplementary Table 2. Biochemical and organ support parameters at admission, stratified by spontaneous survival at day 21 (died/transplanted vs. transplant-free survivors).

| | | Deceased/Transplanted (N = 365) | | Transplant-free Survivors (N = 704) | | P-value |
|--|----------|------------------------------------|------------------------|---|-----------------------|---------|
| Biochemistry | | N | | N | | |
| Hemoglobin (g/L) | | 362 | 103 (91-121) | 695 | 111 (95-127) | <0.001 |
| White Blood Cells (10 ⁹ /L) | | 362 | 11.0 (6.8-16.1) | 695 | 8.8 (6.2-12.8) | <0.001 |
| Platelets (10 ⁹ /L) | | 362 | 112 (68-166) | 689 | 131 (91-184) | <0.001 |
| INR | | 356 | 3.6 (2.4-5.6) | 688 | 2.7 (1.9-4.0) | <0.001 |
| AST (IU/L) | | 362 | 5311 (2357-9301) | 693 | 2852 (1160-6660) | <0.001 |
| ALT (IU/L) | | 361 | 4100 (1965-6534) | 693 | 3543 (2031-5867) | 0.09 |
| Bilirubin | (µmol/L) | 362 | 83.8 (59.9-121.4) | 687 | 70.1 (41.0-104.3) | <0.001 |
| | (mg/dL) | | 4.9 (3.5-7.1) | | 4.1 (2.4-6.1) | |
| pH | | 336 | 7.40 (7.32-7.47) | 563 | 7.42 (7.36-7.47) | <0.001 |
| Ammonia (venous) (µmol/L) | | 138 | 148 (102-258) | 273 | 89 (61-134) | <0.001 |
| Creatinine | (µmol/L) | 365 | 212.2 (123.8-309.4) | 697 | 123.8 (70.7-256.4) | <0.001 |
| | (mg/dL) | | 2.4 (1.4-3.5) | | 1.4 (0.8-2.9) | |
| Lactate (mmol/L) | | 253 | 7.8 (4.7-12.8) | 428 | 2.9 (1.8-5.0) | <0.001 |
| Phosphate (µmol/L) | | 311 | 1.06 (0.68-1.52) | 616 | 0.74 (0.52-1.07) | <0.001 |
| King's College Criteria met | | 365 | 83 (22.7%) | 704 | 59 (8.4%) | <0.001 |
| ALFSG Prognostic Index | | | | | | |
| Survival Predicted Probability ≥ 80% | | 342 | 36 (10.5%) | 649 | 331 (51.0%) | <0.001 |
| MELD | | 353 | 36.0 (29.2-41.6) | 673 | 27.3 (18.9-35.1) | <0.001 |
| Coma Grade 3/4 | | 353 | 259 (73.4%) | 677 | 301 (44.5%) | <0.001 |
| Organ support | | | | | | |
| Mechanical Ventilation | | 365 | 283 (77.5%) | 704 | 313 (44.5%) | <0.001 |
| Vasopressors | | 365 | 172 (47.1%) | 704 | 91 (12.9%) | <0.001 |
| Continuous Renal | | 364 | 50 (13.7%) | 704 | 66 (9.4%) | 0.030 |

| | | | | | |
|---------------------|--|--|--|--|--|
| Replacement Therapy | | | | | |
|---------------------|--|--|--|--|--|

Abbreviations: *ALFSG*, Acute Liver Failure Study Group; *ALT*, alanine aminotransferase; *AST*, aspartate aminotransferase; *INR*, international normalized ratio, *MELD*, model for end stage liver disease.

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