**SUPPLEMENTAL MATERIAL**

**Supplemental Table 1.** Etiologies of adult respiratory distress syndrome (ARDS) in mechanically ventilated patients with cirrhosis (some patients had multiple etiologies).

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| --- | --- |
| **Etiology of ARDS**  | **Number and percentage** |
| Sepsis Pneumonia Aspiration Transfusion related acute lung injuryMassive transfusionOtherUnknown  | 19 (54%)16 (46%)10 (29%)2 (6%)2 (6%)4 (11%)2 (6%) |

**Supplemental Table 2.** The etiology of respiratory failure, infections and diastolic dysfunction in mechanically ventilated patients with cirrhosis, comparing those with and without ARDS. The data are reported as mean ± standard deviation or percentages, unless otherwise specified.

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| --- | --- | --- | --- |
| **Clinical variable** | **ARDS****(n=35)** | **Non-ARDS****(n=146)** | **P-value** |
| Etiology of Respiratory Failure (%):* Respiratory failure
* Altered mental status
* Gastrointestinal bleed
* Sepsis
* Elective for procedures
 | 66%9%6%20%None | 18%33%31%7%12% | <.001 |
| Suspected infection number and (%) | 30 (86%) | 77 (53%) | <.001 |
| Culture proven infection | 23 of 30 (77%) | 47 of 81 (58%) | .07 |
| Culture results in patients with culture proven infection (%)* Gram negative
* Resistant bacteria gram negative
* Gram positive
* Resistant bacteria gram positive
* Fungal
 | 34%3%14%17%6% | 6%1.4%16%6%3% | 0.8.03<.001.5.4 |
| Infection source in patients with culture proven infection (%)* Pulmonary
* Bloodstream
* Abdominal
* Genitourinary
* Skin/Soft Tissue
 | 63%34%20%20%6% | 25%16%16%11%2% | <.001.013.5.15.2 |
| Diastolic dysfunction when evaluated | 10 of 53 (19%) | None of 21 | .03 |

Abbreviations: ARDS, Acute Respiratory Distress Syndrome

**Supplemental Table 3 –** A description of the Chronic Liver Failure-Sequential Organ Failure Assessment (CLIF-SOFA Score)**. 17**

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| --- | --- | --- | --- | --- | --- |
| Organ/System | 0 | 1 | 2 | 3 | 4 |
| Liver (bilirubin, mg/dL) | <1.2 | ≥1.2 to <2.0 | ≥2.0 to <6.0 | ≥6.0 to <12 | **≥12.0** |
| Kidney (creatinine, mg/dL) | <1.2 | ≥1.2 to <2.0 | ≥2.0 to <3.5 | **≥3.5 to <5** | **≥5.0****Or use of RRT** |
| Cerebral (HE grade) | No HE | I | II | **III** | **IV** |
| Coagulation (International normalized ratio) | <1.1 | ≥1.1 to <1.25 | ≥1.25 to <5.0 | ≥1.5 to <2.5 | **≥2.5 or platelet count ≤20x109/L** |
| Circulation (mean arterial pressure, mm Hg) | ≥70 | <70 | **Dopamine ≤5 or dobutamine or terlipressin** | **Dopamine>5 or E≤0.1 or NE≤0.1** | **Dopamine>15 or E>0.1 or NE >0.1** |
| Lungs PaO2/FiO2 or SpO2/FiO2 | >400>512 | >300 to ≤400>357 to ≤512 | >200 to ≤400>214 to ≤357 | **>100 to ≤200****>89 to ≤214** | **≤100****≤89** |

Abbreviations: CLIF-SOFA, Chronic Liver Failure-Sequential Organ Failure Assessment; E, epinephrine; FiO2, Fraction of inspired oxygen; HE, Hepatic encephalopathy; NE, norepinephrine; PaO2, Partial pressure of oxygen in arterial blood; RRT, renal replacement therapy; SpO2, peripheral capillary oxygen saturation

Note: Please note the original SOFA score by Vincent et al18 The CLIF-SOFA score includes subscores ranging from 0 to 4 for each of 6 components (liver, kidneys, brain, coagulation, circulation, and lungs), with higher scores indicating more severe organ impairment. Aggregate scores range from 0 to 24 and provide information on overall severity. The text in bold indicates the diagnostic criteria for organ failures.

**Supplemental Table 4** – A description of the Model for end-stage liver disease (MELD) Score**13,19**

**MELD** = 3.78×ln[serum bilirubin (mg/dL)] + 11.2×ln[INR] + 9.57×ln[serum creatinine (mg/dL)] 6.43.

|  |  |
| --- | --- |
| **MELD Score** | **3-Month Mortality** |
| ≤9 | 1.9% |
| 10-19 | 6.0% |
| 20-29 | 19.6% |
| 30-39 | 52.6% |
| ≥40 | 71.3% |

Abbreviations: INR, international normalized ratio; MELD, Model for end-stage liver disease

**Supplemental Table 5 –** Area under the curve (AUC) analysis for CLIF-SOFA and MELD for predicting hospital and 90-day mortality in all patients and in patients with and without ARDS. Data are reported as the c-statistic with associated 95% confidence interval and p-value.

|  |  |  |
| --- | --- | --- |
| **Model (patients)** | **Hospital Mortality****(95% CI)** | **90-Day Mortality****(95% CI)** |
| **CLIF-SOFA****(All)** | 0.78 (0.70-0.86)p<.001 | 0.78 (0.71-0.86)p<.001 |
| **CLIF-SOFA****(No ARDS)** | 0.76 (0.66-0.86)p<.001 | 0.78 (0.70-0.87)p<.001 |
| **CLIF-SOFA****(ARDS)** | 0.77 (0.60-0.94)p=.008 | 0.73 (0.56-0.90)p=.023 |
| **MELD** **(All)** | 0.80 (0.72-0.87)p<.001 | 0.80 (0.74-0.87) p<.001 |
| **MELD****(No ARDS)** | 0.76 (0.67-0.86)p<.001 | 0.80 (0.72-0.88)p<.001 |
| **MELD****(ARDS)** | 0.89 (0.78-0.99)p<.001 | 0.80 (0.65-0.95)p<.001 |

Abbreviations: ARDS, Acute Respiratory Distress Syndrome, CLIF-SOFA, Chronic Liver Failure-Sequential Organ Failure Assessment; MELD, Model for End-Stage Liver Disease.