**Table S1. Characteristics of** **severe patients with COVID-19 and HBV co-infection.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristics | All patients  N=105 | Survivors  N=87 | Non-survivors  N=18 | *P* value |
| Median age (IQR), yr | 62 (54,71) | 62 (53, 70) | 70 (58,75) | 0.024 |
| Gender, n (%) |  |  |  |  |
| Female | 45 (42.9) | 39 (44.8) | 6 (33.3) | 0.370 |
| Male | 60 (57.1) | 48 (55.2) | 12 (66.7) | -- |
| Comorbidity |  |  |  |  |
| Diabetes, n (%) | 16 (15.2) | 12 (13.8) | 4 (22.2) | 0.585 |
| Hypertension, n (%) | 38 (36.2) | 29 (33.3) | 9 (50.0) | 0.180 |
| Coronary heart disease, n (%) | 11 (10.5) | 8 (9.2) | 3 (16.7) | 0.603 |
| COPD, n (%) | 5 (4.8) | 2 (2.3) | 3 (16.7) | 0.034 |
| Pulmonary tuberculosis, n (%) | 1 (1.0) | 1 (1.1) | 0 (0) | NS |
| Cancer, n (%) | 9 (8.6) | 6 (6.9) | 3 (16.7) | 0.376 |
| Cirrhosis, n (%) | 15 (14.3) | 11 (12.6) | 4 (22.2) | 0.492 |
| HBV infection, n (%) |  |  |  |  |
| HBeAg positive, n (%) | 5 (4.8) | 3 (3.4) | 2 (11.1) | 0.206 |
| HBeAb positive, n (%) | 18 (17.1) | 16 (18.4) | 2 (11.1) | 0.659 |
| HBcAb positive, n (%) | 105 (100) | 87 (100) | 18 (100) | NS |
| Anti-HBV treatment history, n (%) | 8 (7.6) | 5 (5.7) | 3 (16.7) | 0.271 |
| Time from symptom onset to admission, median (IQR), d | 11 (8, 15) | 11 (8, 16) | 10 (7, 12) | 0.195 |
| Drugs treatment during hospitalization |  |  |  |  |
| Corticosteroid treatment, n (%) | 55 (52.4) | 40 (46.0) | 15 (83.3) | 0.004 |
| IFN-α, n (%) | 16 (15.2) | 13 (14.9) | 3 (16.7) | 0.853 |
| Thymosin treatment, n (%) | 29 (27.6) | 22 (25.3) | 7 (38.9) | 0.240 |
| Anti-HBV treatment, n (%) | 9 (8.6) | 8 (9.2) | 1 (5.6) | 0.968 |
| Gamma globulin treatment, n (%) | 36 (34.3) | 25 (28.7) | 11 (61.1) | 0.008 |
| Anticoagulant therapy, n (%) | 21 (20.0) | 14 (16.1) | 7 (38.9) | 0.028 |

COVID-19: coronavirus disease 2019, HBV: hepatitis B virus, IQR: interquartile range, IFN-α: interferon-α.

*P* values indicate differences between survivors and non-survivors. *P* < 0.05 was considered statistically significant.

**Table S2. The laboratory findings of severe patients with COVID-19 and HBV co-infection on admission. Values are median (IQR) unless stated otherwise.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristics | **All patients**  **N=105** | **Survivors**  **N=87** | **Non-survivors**  **N=18** | ***P* value** |
| Leukocyte count  (3.5-9.5×109/L) | 5.70 (4.17,8.10) | 5.48 (4.12,7.30) | 9.59 (4.91,15.7) | 0.004 |
| Neutrophil count  (1.8-6.3×109/L) | 3.97 (2.55,6.38) | 3.52 (2.43,5.55) | 7.35 (4.09,13.5) | 0.002 |
| Lymphocyte count  (1.1-3.2×109/L) | 0.97 (0.52, 1.44) | 1.03(0.63, 1.51) | 0.57 (0.46, 0.80) | 0.001 |
| <0.8 (n, %) | 43 (41.0) | 30 (34.5) | 13 (72.2) | 0.003 |
| Platelet count  (125-350×109/L) | 187 (138, 245) | 187 (151, 248) | 173 (92, 229) | 0.190 |
| PT (10.5-13.5s) | 11.9 (11.3,13.1) | 11.8 (11.1, 12.0) | 12.0 (11.4, 13.8) | 0.433 |
| INR (0.8-1.2) | 1.01 (0.96, 1.11) | 1.00(0.95, 1.10) | 1.02 (0.97, 1.15) | 0.505 |
| D-dimer (0-0.5μg/ml) | 0.70 (0.44, 1.85) | 0.60 (0.40, 1.14) | 2.24 (1.12, 6.36) | 0.001 |
| >1 (n, %) | 38 (38.8) | 25 (30.5) | 13 (81.3) | <0.001 |
| ALT (7-40U/L) | 32.5 (21.1, 53.5) | 34.0 (21.0, 50.7) | 30.3 (24.1, 59.8) | 0.738 |
| AST (13-35U/L) | 36.0 (26.0, 48.0) | 35.0 (26.0, 45.0) | 38.4 (29.4, 49.5) | 0.471 |
| ALP (50-135U/L) | 75.0 (57.8, 88.2) | 74.0 (56.3, 83.6) | 77.5 (68.3, 95.7) | 0.116 |
| Bilirubin (0-21μmmol/L) | 12.7 (9.13, 17.6) | 12.3 (8.60, 16.0) | 15.5 (12.3, 20.6) | 0.011 |
| Prealbumin (180-350mg/L) | 101 (60, 140.5) | 98.5 (65.8,160.3) | 101(53,121) | 0.452 |
| Albumin (40-55g/L) | 32.4 (29.1, 36.2) | 33.4 (29.5, 37.4) | 30.1 (27.4, 32.3) | 0.001 |
| < 30 (n, %) | 33 (32.0) | 24 (28.2) | 9 (50.0) | 0.072 |
| Total cholesterol (3.3-5.2mmoL/L) | 3.66 (3.31, 4.03) | 3.68 (3.32, 4.14) | 3.62 (3.19,4.18) | 0.796 |
| Triglyceride  (0.51-1.70mmoL/L) | 1.19 (0.90, 1.41) | 1.20 (0.88, 1.50) | 1.18 (1.00, 1.24) | 0.658 |
| Low density lipoprotein  (2.1-3.37mmoL/L) | 2.06 (1.75, 2.56) | 2.03 (1.80, 2.51) | 2.29 (1.61, 2.64) | 0.731 |
| High density lipoprotein  (1.29-1.55mmoL/L) | 1.02 (0.81, 1.16) | 1.03 (0.82, 1.17) | 0.85 (0.75, 1.07) | 0.238 |
| Serum creatinine (41-81μmol/L) | 67.4 (58.8, 80.0) | 67.4 (59.0, 81.3) | 67.6 (57.2, 80.0) | 0.969 |
| High-sensitivity troponin (0-28pg/ml) | 2.90 (1.53, 9.40) | 2.70 (1.71, 7.95) | 4.10 (2.34, 13.0) | 0.242 |
| HS-CRP (0-5mg/L) | 14.0 (6.70, 50.0) | 10.7 (5.93, 45.2) | 50.0 (10.0, 119) | 0.004 |
| IL-6 (0-7pg/ml) | 9.19 (5.99, 12.7) | 8.83 (5.88, 11.5) | 13.6 (8.67, 16.2) | 0.067 |
| Procalcitonin (0-0.05ng/ml) | 0.05 (0.05, 0.10) | 0.05 (0.05,0.07) | 0.10 (0.05, 0.16) | 0.021 |
| LDH (120–250 U/L) | 297 (226, 407) | 289 (216, 375) | 390 (294, 518) | 0.027 |
| ESR (0-20mm/h) | 45.9 (30.0, 65.8) | 45.2 (30.0,62.8) | 49.3 (27.5, 71.6) | 0.951 |
| APACHE II | 5 (4, 8) | 5 (4, 9) | 10 (7, 18) | <0.001 |
| SOFA score | 2 (1,3) | 1 (1, 2) | 3 (2,4) | <0.001 |

COVID-19: coronavirus disease 2019, HBV: Hepatitis B virus, PT: Prothrombin time, INR: International Normalized Ratio, ALT: Alanine amino transferase, AST: Aspartate aminotransferase, ALP: Alkaline phosphatase, HS-CRP: High sensitive c reaction protein, IL-6: interleukin-6, LDH: Lactate dehydrogenase, ESR: Erythrocyte sedimentation rate. APACHE II: Acute Physiology and Chronic Health Evaluation Ⅱ, SOFA: Sequential Organ Failure Assessment.

*P* values indicate differences between survivors and non-survivors. *P* < 0.05 was considered statistically significant.

**Table S3. General characteristics and cause of death of severe patients with COVID-19 and HBV co-infection** (**16 corticosteroids treatment and 2 non**-**corticosteroids treatment).**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Gender | | Age | | Time from symptom onset to admission, d | | Time from symptom onset to death, d | Highest  D-dimer  (0-0.5μg/ml) | Cause of death |
| 1 | Male | | 46 | | 7 | | 19 | 52.68 | Severe ARDS, acute cardiac injury, acute liver injury, cardiac arrest. |
| 2 | Female | | 51 | | 6 | | 30 | 21.14 | Severe ARDS, DIC |
| 3 | Male | | 55 | | 10 | | 15 | 2.06 | Severe ARDS, acute cardiac injury, liver injury. |
| 4 | Male | | 56 | | 14 | | 22 | 21.04 | Severe ARDS, liver injury. |
| 5 | Male | | 57 | | 7 | | 13 | 70.86 | Severe ARDS，liver failure, carcinoma of nasopharynx, type 2 diabetes. |
| 6 | Female | | 61 | | 9 | | 69 | 22.24 | Severe ARDS, sepsis shock, liver injury, acute kidney injury, DIC, primary hypertension. |
| 7 | Female | | 61 | | 16 | | 25 | 11.39 | Severe ARDS, liver injury, cardiac arrest, colorectal carcinoma. |
| 8 | Female | | 71 | | 10 | | 23 | 80.00 | Cerebral hemorrhage, moderate ARDS, primary hypertension, type 2 diabetes. |
| 9 | Male | | 73 | | 8 | | 19 | 34.44 | Severe ARDS, sepsis shock, liver injury, acute kidney injury, acute cardiac injury. |
| 10 | Male | 75 | | 9 | | 13 | | 53.44 | Severe ARDS, liver injury. |
| 11 | Female | | 79 | 7 | | 30 | | 10.44 | Severe ARDS, liver injury, primary hypertension, type 2 diabetes, coronary heart disease. |
| 12 | Male | | 83 | 3 | | 22 | | 12.30 | Severe ARDS, primary hypertension, coronary heart disease, COPD |
| 13 | Male | | 75 | 12 | | 25 | | 4.36 | Severe ARDS, sepsis shock, liver injury, acute kidney injury, acute cardiac injury, primary hypertension, type 2 diabetes. |
| 14 | Male | | 70 | 16 | | 50 | | 4.81 | Severe ARDS, DIC, massive alimentary hemorrhage, liver injury, acute cardiac injury. |
| 15 | Male | | 71 | 11 | | 22 | | 22.00 | Severe ARDS, sepsis shock, liver injury, acute kidney injury, acute cardiac injury, primary hypertension. |
| 16 | Female | | 68 | 21 | | 36 | | 31.26 | Severe ARDS, DIC, massive alimentary hemorrhage. |
| 17\* | Male | | 81 | 30 | | 50 | | 0.40 | Severe ARDS, DIC, primary hypertension, type 2 diabetes. |
| 18\* | Male | | 81 | 30 | | 40 | | 1.69 | Severe ARDS, DIC, septic shock, acute cardiac injury, prostate cancer. |

COVID-19: coronavirus disease 2019, HBV: hepatitis B virus, ARDS: acute respiratory distress syndrome, DIC: disseminated intravascular coagulation, COPD: chronic obstructive pulmonary disease**.**

\* Non-corticosteroids treatment.