**Table 2 - Cohort study comorbidities, laboratory investigations and treatments of COVID-19 patients with cardiovascular injury**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Comorbidities | Non-CI (%) | CI  (%) | P value | Inflammatory and cardiac markers (reference units)^ | | | | Treatment/Intervention | | | |
|  | **Non-CI Median (IQR) or Mean ±SD** | **CI Median (IQR) or Mean ±SD** | **P value** | **Type of treatment** | **Non-CI (%)** | **CI (%)** | **P value** |
| Barman et al, 2020 12 | Diabetes mellitus | 24 | 34 | 0.064 | CRP | 610 (280-1090) | - | <0.001\* |  |  |  |  |
| COPD | 8 | 17 | 0.019\* | PCT | 0.12 (0.12-0.17) | 0.9 (0.1-2.6) | <0.001\* |
| CKD | 4 | 17 | <0.001\* | Ferritin | 248000 (108000-585000) | 610000 (417000-1435000) | <0.001\* |
| HTN | 31 | 49 | 0.001\* | LDH | 255 (210-387) | 414 (242-589) | <0.001\* |
| No history of CVD | Troponin I | 0.009 (0.005-0.012) | 0.077 (0.038-0.219) | <0.001\* |
| CK § | 1.3 (0.7-3.5) | 4.8 (2-12) | <0.001\* |
| D-dimer | 59 (32-300) | 323 (99-2475 | <0.001\* |
| Guo et al, 2020 13 | Diabetes mellitus | 8.9 | 30.8 | <0.001\* | CRP | 31.3 (12.4-57.5) | 85.5 (48.7-151.65) | <0.001\* | Antiviral | 88.9 | 88.5 | 0.93 |
| CKD | 0.7 | 9.6 | 0.002\* | PCT | 0.05 (0.04-0.11) | 0.21 (0.11-0.45) | <0.001\* | Antibiotics | 97.0 | 100 | 0.21 |
| HTN | 20.7 | 63.5 | <0.001\* | CK § | 0.81 (0.54-1.38) | 3.34 (2.11-5.8) | <0.001\* | IVIG | 10.4 | 13.5 | 0.5 |
| CHD | 3 | 32.7 | <0.001\* | NT-proBNP | 141.1 (39.3 - 303.6) | 817.4 (336 - 1944) | <0.001\* | Steroids | 51.1 | 71.2 | 0.01\* |
| Cardiomyopathy | 0 | 15.4 | <0.001\* | D-dimer | 890 (170-600) | 3850 (510-25380) | <0.001\* |
| Malignant neoplasm | 5.2 | 11.5 | 0.13 | Troponin T | Normal | High | - |
| COPD | 0 | 7.7 | 0.001\* | Patients were classified based on their troponin T levels (normal or high) but no values were specified | | |
| ACEi/ARB use history | 5.9 | 21.1 | 0.002\* |
| Li et al, 2020 (a) 14 |  |  |  |  | CRP | 5.77 (4.05-6.25) | 6.05 (5.00-11.35) | 0.064 |  |  |  |  |
| PCT | 0.05 (0.03-0.1) | 0.31 (0.12-1.12) | <0.001\* |
| CI was identified by high troponin I but no values were specified | | | |
| Li et al, 2020 (b) 15 | Diabetes mellitus | 14.58 | 20.59 | 0.476 | CRP | 62.5 (27.3-100.0) | 107.8 (61.1-199.3) | 0.002\* |
| CVD | 12.5 | 41.18 | 0.003\* | PCT | 0.10(0.06-0.20) | 0.25 (0.10-1.04) | 0.001\* |
| COPD | 6.25 | 14.71 | 0.266 | LDH | 339(265-493) | 580 (416-830) | <0.001\* |
| Chronic Liver Disease | 6.25 | 2.94 | 0.638 | Troponin I | 0.010(0.006-0.020) | 0.675 (0.073-3.161) | <0.001\* |
| KD | 4.17 | 5.88 | 1.000 | CK § | 1.20(0.75-2.13) | 4.52 (2.24-7.52) | <0.001\* |
| Cancer | 2.08 | 5.88 | 0.576 | BNP | 249(147 -678) | 2834 (1337-7020) | <0.001\* |
| CeVD | 4.17 | 11.76 | 0.266 | D-dimer | 2080 (960-5240) | 4560 (2550-22560) | 0.004 |
| HT | 37.5 | 58.82 | 0.056 |
| Mahmoud-Elsayed et al, 2020 16 | Diabetes mellitus | 33 | 45 | 0.36 | CRP | 2980 ± 1120 | 3280 ± 1190 | 0.19 | IMV | 83 | 80 | 0.74 |
| CAD | 13 | 0 | 0.18 | Troponin I | 0.015 (0.006-0.046) | 0.012 (0.006-0.252) | 0.19 | Vasopressor support | 57 | 60 | 0.84 |
| Lung disease | 13 | 15 | 1.00 | D-dimer | 724 (410-6362) | 635 (365-1396) | 0.33 |
| CKD | 15 | 0 | 0.10 |
| Cancer | 7 | 5 | 1.00 |
| Stroke | 9 | 0 | 0.31 |
| HTN | 44 | 35 | 0.47 |
| Smoker | 9 | 0 | 0.3 |
| Shi et al, 2020 (a) 17 | Diabetes mellitus | 12.7 | 23.6 | 0.006\* | CRP | 29 (8-64) | 88 (60-147) | <0.001\* |  |  |  |  |
| CHD | 5.5 | 27.4 | <0.001\* | PCT | 0.05 (0.03-0.09) | 0.23 (0.09-0.69) | <0.001\* |
| Chronic HF | 1.6 | 12.3 | <0.001\* | Troponin I | 0.006 (0.006-0.007) | 0.159 (0.075-0.695) | <0.001\* |
| COPD | 2.3 | 9.4 | 0.001\* | CK-MB § | 0.85 (0.58-1.21) | 2.81 (1.45-5.72) | <0.001\* |
| CKD | 1.9 | 16 | <0.001\* | NT-pro-BNP | 133 (50-265) | 1346 (474-3018) | <0.001\* |
| Cancer | 2.7 | 7.5 | 0.019\* |  |
| CeVD | 1.9 | 10.4 | <0.001\* |  |
| HTN | 24.1 | 59.4 | <0.001\* |  |
| Shi et al, 2020 (b) 18 | Diabetes mellitus | 12.0 | 24.4 | 0.008\* | CRP | 37 (10-73) | 102 (64-170) | <0.001\* | Antibiotics | 50 | 82.9 | <0.001\* |
| CHD | 6.0 | 29.3 | <0.001\* | PCT | 0.06 (0.03-0.1) | 0.27 (0.10-1.22) | <0.001\* | Antiviral | 96.1 | 100 | 0.08 |
| COPD | 1.8 | 7.3 | 0.02\* | Troponin I | <0.006 (<0.006-0.009) | 0.19 (0.08-1.12) | <0.001\* | CRRT | 0 | 2.4 | 0.04\* |
| CDK | 2.7 | 6.1 | 0.16 | CK § | 0.9 (0.6-1.3) | 3.2 (1.8-6.2) | <0.001\* | Glucocort-icoids | 69.5 | 87.8 | <0.001\* |
| Hepatitis B | 0.6 | 2.4 | 0.18 | NT-proBNP | 139 (51-335) | 1689 (698-3327) | <0.001\* | IMV | 4.2 | 22 | <0.001\* |
| Cancer | 0.6 | 8.5 | <0.001\* | IVIg | 57.2 | 82.9 | <0.001\* |
| CeVD | 2.7 | 15.9 | <0.001\* | NIV | 3.9 | 46.3 | <0.001\* |
| HTN | 23.4 | 59.8 | <0.001\* | Oxygen support | 86.8 | 31.7 | <0.001\* |
| Pregnancy | 2.1 | 0 | 0.35 |
| Wei et al, 2020 19 | Diabetes mellitus | 11.8 | 25 | 0.160 | CRP | 9.3 (2.2 - 24.0) | 23.7 (4.6 -67.9) | 0.050\* | ACEi/ ARB | 2.4 | 18.8 | 0.006\* |
| CAD | 2.4 | 18.8 | 0.006\* | PCT | 0.00002 (0.00002-0.00004) | 0.00004 (0.00002 - 0.00013) | 0.037\* | CCB | 8.2 | 31.3 | 0.009\* |
| COPD | 1.2 | 0 | 0.663 | LDH | 210 (182 - 252) | 287 (235.5 -370.5) | <0.001\* | Diuretics | 1.2 | 0 | 0.663 |
| CeVD | 3.5 | 18.8 | 0.018\* | Troponin T | 0.006 (0.0041- 0.0085) | 0.042 (0.0171 - 0.3201) | <0.001\* | IMV | 4.7 | 43.5 | <0.001\* |
| HTN | 14.3 | 56.3 | <0.001\* | CK | 12 (9 -15) | 13.5 (11 - 20.5) | 0.019\* | Statins | 0 | 6.3 | 0.021\* |
|  |  |  |  | NT-proBNP | 62.9 (26.6-148.2) | 6082 (142.7-7588) | <0.001\* | Vasoactive agents | 0 | 31.2 | <0.001\* |

**ACI:** Acute Cardiac Injury**; ACEi**: Angiotensin Converting Enzyme inhibitor; **ARB**: Angiotensin Receptor Blocker; **BNP:** Brain Naturietic Peptide; **CI:** Cardiac Injury**;**  **CAD**: Coronary Artery Disease; **CeVD**: Cerebrovascular Disease; **CHD**; Coronary Heart Disease; **CKD**: Chronic Kidney Disease; **COPD**: Chronic Obstructive Pulmonary Disease; **CK**: Creatinine Kinase; **CRP**: C-Reactive Protein; **CRRT**: Continuous Renal Replacement Therapy; **ECMO**: Extra Corporeal Membrane Oxygenation; **HF**: Heart Failure; **HTN**: Hypertension; **IMV**: Intermittent Mandatory Ventilation; **LDH**: Lactate Dehydrogenase; **NIV**: Non-Invasive Ventilation; **NT-Probnp:** N-Terminal (NT)-Pro Hormone Brain Natriuretic Peptide**; PCT**: Procalcitonin; \*: significant. **Units ^:** CRP (mg/L), IL-6 (pg/mL), TNF-alpha (pg/mL), IL-2 (pg/mL), IFN-gamma (pg/mL), PCT (ng/mL), Ferritin (ng/mL), Troponin (ng/mL), BNP/NT-proBNP (pg/mL), CK/CK-MB (U/L), CK/CK-MB § (ng/mL) , LDH (U/L), D-dimer (ng/mL).