

Table 2 Risk factors associated with intensive care unit (ICU) admission or death among COVID-19 patients

| | Crude OR (95% CI) | P-value | Adjusted OR* (95%CI) | P-value |
|--|-------------------|---------|----------------------|---------|
| Sex (Male) | 2.01 (1.22-3.34) | 0.006 | 1.92 (1.15-3.20) | 0.012 |
| Age (continuous) -years | 1.03 (1.01-1.05) | 0.001 | 1.03 (1.01-1.04) | 0.001 |
| Age (≥65) - years | 3.15 (1.40-7.09) | 0.005 | 3.07 (1.35-6.96) | 0.007 |
| Age Categories - years | | | | |
| 1-20 | Reference | - | Reference | |
| 21-40 | 1.52 (0.57-3.99) | 0.401 | 1.33 (0.50-3.55) | 0.564 |
| 41-60 | 1.90 (0.69-5.25) | 0.214 | 1.63 (0.59-4.54) | 0.35 |
| >60 | 4.04 (1.32-12.36) | 0.014 | 3.65 (1.18-11.27) | 0.024 |
| Smoker | 0.98 (0.51-1.88) | 0.943 | 0.79 (0.40-1.58) | 0.517 |
| Comorbidities | | | | |
| One or more comorbidity | 2.01 (1.24-3.28) | 0.005 | 1.51 (0.87-2.62) | 0.141 |
| Two or more Comorbidity | 3.38 (1.91-5.99) | 0.001 | 2.57 (1.33-4.97) | 0.005 |
| Diabetes Mellitus | 2.37 (1.28-4.37) | 0.006 | 1.45 (0.72-2.93) | 0.304 |
| Hypertension | 2.28 (1.23-4.20) | 0.009 | 1.37 (0.64-2.80) | 0.443 |
| CRD | 2.25 (1.23-4.08) | 0.008 | 2.29 (1.24-4.25) | 0.008 |
| Chronic Kidney diseases | 1.50 (0.32-6.96) | 0.608 | 0.98 (0.21-4.68) | 0.981 |
| Cardiac Diseases | 4.30 (1.76-10.50) | 0.001 | 3.05 (1.16-8.02) | 0.024 |
| Cancer/Immunodeficiency | 2.98 (1.03-8.61) | 0.043 | 2.24 (0.73-6.87) | 0.158 |
| Symptoms | | | | |
| Fever | 3.69 (0.84-16.27) | 0.085 | 2.78 (0.61-12.59) | 0.185 |
| Cough | 6.07 (0.79-46.23) | 0.081 | 5.05 (0.65-39.02) | 0.121 |
| Sore Throat | 1.67 (0.46-6.09) | 0.437 | 1.28 (0.34-4.88) | 0.715 |
| Runny Nose | 0.56 (0.15-2.09) | 0.386 | 0.50 (0.13-1.94) | 0.317 |
| Headache | 0.55 (0.27-1.12) | 0.096 | 0.62 (0.30-1.28) | 0.199 |
| GI Symptoms | 1.62 (0.79-3.31) | 0.185 | 1.80 (0.87-3.74) | 0.113 |
| Myalgia | 1.12 (0.61-2.06) | 0.711 | 1.18 (0.63-2.18) | 0.610 |
| Vital Signs | | | | |
| Temperature (≥38) -°C | 1.77 (0.84-3.72) | 0.136 | 1.64 (0.77-3.51) | 0.200 |
| Heart Rate ≥100 -beats/min | 2.22 (0.77-6.36) | 0.139 | 1.99 (0.67-5.88) | 0.216 |
| Respiratory Rate (Continuous) -breaths/min | 1.13 (0.93-1.36) | 0.212 | 1.10 (0.91-1.33) | 0.307 |
| Respiratory rate (>24) | 3.29 (0.51-21.24) | 0.210 | 2.34 (0.35-15.84) | 0.384 |
| SBP (continuous) -mmHg | 0.99 (0.96-1.02) | 0.595 | 0.99 (0.96-1.02) | 0.365 |
| DBP (continuous) -mmHg | 0.97 (0.93-1.03) | 0.319 | 0.96 (0.90-1.02) | 0.143 |
| Oxygen saturation % | 1.02 (0.93-1.13) | 0.652 | 1.04 (0.93-1.15) | 0.513 |
| Oxygen saturation (< 94) | 0.75 (0.25-2.28) | 0.611 | 0.75 (0.24-2.33) | 0.623 |

OR=odds ratio; CI=confidence interval

CRD=chronic respiratory diseases;

GI=gastrointestinal; SBP=systolic blood pressure;

DBP=diastolic blood pressure

* Adjusted for age and gender

study carried out in the UK indicating that CRD was a risk factor for in-hospital mortality in COVID-19 patients (6).

Having two or more comorbidities are independent risk factors for ICU admission and mortality with an adjusted OR=2.57. Comorbidities should be considered when risk stratifying patients with COVID-19 as supported by the nationwide analysis from China (8). Although initial symptoms and vital signs were not associated with worse outcomes, it is crucial to not fully rely on the initial clinical manifestations in predicting

outcomes for COVID-19 patients because the disease might have an unpredictable course.

The missing data variables in our study contributed broadly to these differences in that we retrieved only 5.2% of WBCs, 4.3% of neutrophils, and 3.5% of lymphocytes results; these failed to generate a robust analysis to assess the association.

Tobacco smoking is a controversial factor in COVID-19. There has been a strong relation between angiotensin-converting enzyme 2 (ACE2) expression in the lung tissue and the spread of COVID-19 disease.