Appendix 1.Risk factors associated with death in COVID-19 patients

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|  | **Single OR (95% CI)** | **P-Value** | **Multiple OR (95% CI)** | **P-Value** |
| **Demographics and baseline characteristics** |  |  |  |  |
| Age | 1.02 (1.01-1.03) | <0.001 | 1.01 (1.01 – 1.02) | <0.001 |
| Sex, Male vs. Female | 1.26 (1.03-1.53) | 0.023 | 1.29 (1.05 – 1.59) | 0.016 |
| Pregnancy, Yes vs. No | 0.55 (0.23-1.33) | 0.184 |  |  |
| BMI | 1.03 (0.99-1.06) | 0.058 |  |  |
| Location, City vs. Village | 0.91 (0.60-1.38) | 0.667 |  |  |
| Exposure history |  |  |  |  |
| Home vs. no | 1.25 (0.89-1.76) | 0.203 |  |  |
| Out of Home vs. no | 0.90 (0.58-1.42) | 0.659 |  |  |
| Comorbidity, Yes vs. No |  |  |  |  |
| Hypertension (HTN) | 1.27 (1.04-1.55) | 0.017 |  |  |
| Ischemic heart disease (ICH) | 1.13 (0.84-1.52) | 0.416 |  |  |
| Coronary artery bypass grafting (CABG) | 1.50 (0.93-2.41) | 0.093 |  |  |
| Cognitive hear failure (CHF) | 3.41 (2.12-5.47) | <0.001 |  |  |
| Asthma | 0.72 (0.41-1.25) | 0.240 |  |  |
| Chronic obstructive pulmonary disease (COPD) | 1.34 (0.91-1.97) | 0.135 |  |  |
| Diabetes mellitus (DM) | 1.14 (0.93-1.40) | 0.203 |  |  |
| Pneumonia | 1.41 (0.87-2.29) | 0.167 |  |  |
| Cerebrovascular accident (CVA) | 2.06 (1.30-3.27) | 0.002 |  |  |
| Gastrointestinal (GI) | 0.99 (0.57-1.72) | 0.971 |  |  |
| Chronic kidney disease (CKD) | 2.02 (1.40-2.91) | <0.001 | 1.76 (1.20 – 2.58) | 0.004 |
| Rheumatoid arthritis | 1.16 (0.70-1.91) | 0.567 |  |  |
| Cancer | 2.05 (1.20-3.49) | 0.008 | 2.51 (1.43 – 4.40) | 0.001 |
| Hyperlipidemia (HLP) | 1.24 (0.95-1.62) | 0.107 |  |  |
| Hepatitis C virus (HCV) | 1.08 (0.40-2.90) | 0.876 |  |  |
| Thyroid disease | 0.88 (0.46-1.71) | 0.715 |  |  |
| Immune deficiency | 0.50 (0.21-1.21) | 0.123 |  |  |
| Hysteria | 1.22 (0.60-2.47) | 0.580 |  |  |
| Tuberculosis | 2.35 (1.11-4.97) | 0.026 | 2.82 (1.31 – 6.06) | 0.008 |
| Anemia | 1.05 (0.44-2.54) | 0.911 |  |  |
| Fatty liver | 0.87 (0.54-1.39) | 0.558 |  |  |
| Neurological disorders | 1.51 (0.68-3.39) | 0.314 |  |  |
| Parkinson | 0.91 (0.23-3.64) | 0.891 |  |  |
| Alzheimer | 1.10 (0.49-2.46) | 0.820 |  |  |
| Smoke, Yes vs. No | 1.39 (0.90-2.17) | 0.139 |  |  |
| Addiction, Yes vs. No | 1.71 (0.81-3.60) | 0.162 |  |  |
| Improper use of drugs, Yes vs. No |  |  |  |  |
| PPI | 1.06 (0.91-1.40) | 0.663 |  |  |
| NSAID | 0.87 (0.56-1.37) | 0.552 |  |  |
| Antibiotic | 0.64 (0.45-0.92) | 0.015 |  |  |

Appendix 1.Continue

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|  | **Single OR (95% CI)** | **P-Value** | **Multiple OR (95% CI)** | **P-Value** |
| **Symptomatic and radiological characteristics** |  |  |  |  |
| Onset of symptom to hospital admission | 1.01 (0.98-1.04) | 0.486 |  |  |
| Sign and symptoms |  |  |  |  |
| Fever | 1.05 (0.86-1.28) | 0.625 |  |  |
| Cough | 0.86 (0.70-1.07) | 0.178 |  |  |
| Throat clearing | 0.82 (0.60-1.11) | 0.202 |  |  |
| Dyspnea | 0.94 (0.75-1.19) | 0.628 |  |  |
| Myalgia or arthralgia | 0.50 (0.38-0.66) | <0.001 | 0.68 (0.51 – 0.92) | 0.012 |
| Fatigue | 1.07 (0.86-1.33) | 0.571 |  |  |
| Headache | 0.67 (0.41-1.09) | 0.108 |  |  |
| Nausea | 0.87 (0.68-1.11) | 0.258 |  |  |
| Diarrhea | 0.72 (0.46-1.12) | 0.144 |  |  |
| Abdominal pain | 0.97 (0.63-1.47) | 0.872 |  |  |
| Dizziness | 0.81 (0.42-1.56) | 0.524 |  |  |
| Parosmia | 1.21 (0.89-1.66) | 0.224 |  |  |
| Anorexia | 0.87 (0.66-1.14) | 0.320 |  |  |
| loss of consciousness | 2.83 (1.85-4.32) | <0.001 |  |  |
| Sweating | 0.43 (0.11-1.73) | 0.236 |  |  |
| Hemoptysis | 1.70 (0.91-3.18) | 0.099 |  |  |
| hallucination | 0.95 (0.45-2.01) | 0.900 |  |  |
| Chest CT images |  |  |  |  |
| Normal |  |  |  |  |
| Abnormal |  |  |  |  |
|  *Bilateral lung* |  |  |  |  |
|  *Unilateral lung* |  |  |  |  |
|  *Ground lass opacity (GGO)* | 0.95 (0.68-1.35) | 0.789 |  |  |
|  *Pleural effusion* | 1.60 (1.30-1.99) | <0.001 |  |  |
|  *Nodules* | 2.08 (1.67-2.58) | <0.001 |  |  |
|  *Consolidation* | 1.14 (0.92-1.40) | 0.223 |  |  |
|  *Crazy paving* | 1.04 (0.85-1.28) | 0.706 |  |  |
|  *Pericardial effusion* | 0.98 (0.68-1.42) | 0.934 |  |  |
| **Vital signs and laboratory results** |  |  |  |  |
| ESR | 1.01 (1.01-1.02) | <0.001 | 1.01 (1.01 – 1.02) | <0.001 |
| CRP | 1.00 (1.00-1.00) | 0.081 |  |  |
| Hb | 0.96 (0.92-1.00) | 0.050 |  |  |
| PLT | 1.00 (1.00-1.00) | 0.145 |  |  |
| PT | 1.05 (1.01-1.09) | 0.007 |  |  |
| I.N.R | 1.21 (0.88-1.65) | 0.238 |  |  |
| PTT | 1.00 (1.00-1.01) | 0.219 |  |  |

Appendix 1.Continue

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|  | **Single OR (95% CI)** | **P-Value** | **Multiple OR (95% CI)** | **P-Value** |
| Creatinine | 1.05 (0.95-1.15) | 0.362 |  |  |
| AST | 1.00 (1.00-1.01) | <0.001 |  |  |
| ALT | 1.00 (1.00-1.01) | <0.001 | 1.01 (1.01 – 1.02) | 0.001 |
| WBC | 1.00 (1.00-1.00) | <0.001 |  |  |
| NEUT | 1.00 (1.00-1.00) | <0.001 | 1.01 (1.01 – 1.02) | 0.033 |
| LYM | 1.00 (1.00-1.00) | 0.066 |  |  |
| Troponin | 1.00 (1.00-1.00) | <0.001 |  |  |
| CPK | 1.00 (1.00-1.00) | 0.001 | 1.01 (1.01 – 1.02) | 0.013 |
| NLR | 1.28 (1.19-1.36) | <0.001 |  |  |
| Vital sign |  |  |  |  |
| SPO2 | 0.97 (0.96-0.98) | <0.001 | 0.98 (0.97 – 0.99) | <0.001 |
| BP1 | 1.01 (1.00-1.01) | 0.004 |  |  |
| BP2 | 1.01 (1.00-1.02) | 0.007 | 1.01 (1.00 – 1.02) | 0.007 |
| Pulse | 1.01 (1.00-1.01) | 0.013 |  |  |
| RR | 1.01 (0.99-1.02) | 0.269 |  |  |
| Temperature | 1.10 (0.97-1.24) | 0.141 |  |  |
| Drug |  |  |  |  |
| Hydroxychloroquine | 0.91 (0.72-1.16) | 0.460 |  |  |
| Kaletra (Lopinavir/ritonavir) | 0.79 (0.65-0.95) | 0.015 | 0.78 (0.63 – 0.97) | 0.024 |
| Oseltamivir | 0.36 (0.30-0.44) | <0.001 | 0.35 (0.29 – 0.44) | <0.001 |
| Paracetamol  | 1.00 (0.79-1.27) | 0.989 |  |  |
| Naproxen | 0.86 (0.70-1.05) | 0.137 |  |  |
| Ribavirin | 1.27 (1.02-1.59) | 0.030 |  |  |
| Pantoprazole | 0.97 (0.80-1.17) | 0.733 |  |  |
| Ceftriaxone | 0.92 (0.76-1.12) | 0.420 |  |  |
| Metoclopramide  | 0.54 (0.31-0.94) | 0.029 |  |  |
| Ondansetron | 0.93 (0.72-1.21) | 0.593 |  |  |
| Diphenhydramine | 0.67 (0.53-0.84) | <0.001 | 0.58 (0.46 – 0.74) | <0.001 |
| Meropenem | 1.49 (1.23-1.81) | <0.001 | 1.37 (1.03 – 1.81) | 0.030 |
| Linezolid | 1.31 (1.01-1.70) | 0.042 | 1.36 (1.11 – 1.68) | 0.004 |
| Atrovent( Ipratropium bromide) | 1.03 (0.82-1.30) | 0.796 |  |  |
| Atorvastatin | 1.02 (0.81-1.28) | 0.894 |  |  |
| Vancomycin | 1.25 (1.03-1.52) | 0.025 | 1.36 (1.11 – 1.68) | 0.004 |
| Dexamethasone | 0.88 (0.69-1.12) | 0.304 |  |  |
| Salbutamol | 0.96 (0.77-1.19) | 0.701 |  |  |
| Combivent(Ipratropium bromide/salbutamol) | 1.40 (1.09-1.79) | 0.008 |  |  |
| Pulmicort(Budesonide) | 1.03 (0.79-1.35) | 0.827 |  |  |
| Levofloxacin | 1.21 (0.89-1.64) | 0.222 |  |  |

Appendix 1.Continue

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|  | **Single OR (95% CI)** | **P-Value** | **Multiple OR (95% CI)** | **P-Value** |
| Enoxaparin sodium | 0.75 (0.62-0.92) | 0.006 |  |  |
| Heparin | 1.41 (1.13-1.75) | 0.002 |  |  |
| Aspirin  | 1.42 (1.10-1.84) | 0.007 |  |  |
| N-acetyl cysteine | 0.91 (0.69-1.19) | 0.480 |  |  |
| Clindamycin | 0.72 (0.32-1.62) | 0.431 |  |  |
| ‎Azithromycin | 0.62 (0.51-0.76) | <0.001 |  |  |
| Dextromethorphan | 0.95 (0.62-1.47) | 0.829 |  |  |
| Remdesivir | 0.81 (0.58-1.12) | 0.203 |  |  |
| Clopidogrel  | 1.40 (0.91-2.16) | 0.126 |  |  |
| Interferon Beta- 1A | 0.67 (0.49-0.94) | 0.019 | 0.44 (0.31 – 0.63) | <0.001 |
| Fluconazole | 0.76 (0.44-1.30) | 0.312 |  |  |
| Prednisolone | 1.07 (0.76-1.52) | 0.680 |  |  |
| Promethazine | 0.69 (0.39-1.22) | 0.198 |  |  |
| Seroflo(Fluticasone/salmeterol) | 0.91 (0.57-1.46) | 0.702 |  |  |
| Ciprofloxacine | 0.94 (0.72-1.22) | 0.632 |  |  |
| Vitamin B-complex | 0.86 (0.65-1.13) | 0.283 |  |  |
| Vitamin C | 0.97 (0.73-1.30) | 0.843 |  |  |
| Vitamin D | 1.13 (0.80-1.60) | 0.480 |  |  |
| MgSo4 | 0.83 (0.60-1.14) | 0.248 |  |  |
| Dimenhydrinate | 0.71 (0.51-0.99) | 0.045 |  |  |
| Selenium | 1.00 (0.66-1.51) | 0.998 |  |  |
| Clidinium C | 0.29 (0.11-0.76) | 0.013 | 0.34 (0.12 – 0.97) | 0.044 |
| Bromhexine | 1.36 (0.87-2.11) | 0.174 |  |  |
| CaCo3 | 1.00 (0.65-1.52) | 0.986 |  |  |
| Amantadin | 0.85 (0.57-1.26) | 0.413 |  |  |
| Imipenem | 0.87 (0.57-1.32) | 0.516 |  |  |
| Piperacillin | 0.77 (0.34-1.73) | 0.522 |  |  |
| Atazonavir | 1.38 (0.88-2.16) | 0.160 |  |  |
| **Intervention and event** |  |  |  |  |
| Intubation | 3.75 (3.04-4.63) | <0.001 | 2.31 (1.81 – 2.94) | <0.001 |
| Dialysis | 2.38 (1.71-3.31) | <0.001 |  |  |
| Plasmapheresis | 2.22 (1.37-3.62) | 0.001 | 1.87 (1.11 – 3.16) | 0.019 |
| Platelet transfusion | 0.44 (0.06-3.14) | 0.413 |  |  |
| Blood transfusion | 0.91 (0.69-1.18) | 0.463 |  |  |
| CVA | 1.01 (0.57-1.79) | 0.981 |  |  |
| Myocardial infarction | 0.62 (0.34-1.15) | 0.128 |  |  |
| DVT | 0.62 (0.36-1.05) | 0.076 |  |  |
| kidney injury | 1.94 (1.45-2.60) | <0.001 |  |  |
| alopecia | 0.47 (0.23-0.95) | 0.035 | 0.39 (0.19 – 0.79) | 0.009 |
| Abnormal bleeding | 0.89 (0.61-1.30) | 0.536 |  |  |

Appendix 1.Continue

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|  | **Single OR (95% CI)** | **P-Value** | **Multiple OR (95% CI)** | **P-Value** |
| Weight loss | ----- |  |  |  |
| myocardial injury | 0.82 (0.61-1.10) | 0.184 |  |  |
| skin problems | 0.83 (0.39-1.76) | 0.635 |  |  |
| liver injury | 0.52 (0.28-0.97) | 0.040 | 0.40 (0.19 – 0.83) | 0.015 |
| Respiratory facilities |  |  |  |  |
| Simple face mask vs. None | 0.58 (0.39-0.87) | 0.008 |  |  |
| Nasal vs. None | 0.45 (0.31-0.67) | <0.001 |  |  |
| Reserve bag vs. None | 0.65 (0.48-0.88) | 0.005 |  |  |

**Note: the multiple (adjusted) OR was estimated for each significant variable in single model after using stepwise selection variable.**