**Supplemental Materials**

Table S1. Abbreviations and Reference Value of Lab- examination Index

|  |  |  |
| --- | --- | --- |
| Abbreviation | Full Name | Reference Value/unit |
| WBC | White blood cell | 4-10\*109/L |
| Hb | Haemoglobin | 120-160 g/L |
| PLT | Platelet count | 100-400\*109/L |
| LYMPH | Lymphocyte count | 0.8-4\*109/L |
| Alb | Albumin | 35-55 g/L |
| ALT | Glutamic-pyruvic Transaminase | 0-50 U/L |
| AST | Glutamic Oxaloacetic Transaminase | 0-50 U/L |
| TBIL | Total bilirubin | 0-20 umol/L |
| Bun | Blood urea nitrogen | 1.7-8.2 mmol/L |
| Crea | Creatinine | 38-120 umol/L |
| UA | Uric Acid | 204-428 umol/L |
| CRP | C-reactive protein | 0-10 mg/L |
| PCT | Procalcitonin | 0-0.1 ng/ml |
| ESR | Erythrocyte Sedimentation Rate | 0-25 mm/h |
| PT | Prothrombin Time | 8.6-12 s |
| INR | International Normalized Ratio | 0.8-1.1 |
| APTT | Activated Partial Thromboplastin Time | 26-42 s |
| D-Dimer | / | 0-243 ng/ml |
| FDP | Fibrin Degradation Product | 0-5 ug/ml |
| Fib | Fibrinogen | 1.9-4.6 g/L |
| PH | / | 7.35-7.45 |
| PCO2 | Partial Pressure of Carbon Dioxide | 35-45 mmHg |
| PO2 | Partial pressure of oxygen | 75～100 mmHg |
| SO2 | Oxygen saturation | 95-98 % |
| Lat | Lactate | 0.18-3 mmol/L |
| K＋ | Potassium | 3.8-5.4 mmol/L |
| Na＋ | Sodium | 135-148 mmol/L |
| Ca＋ | Calcium | 2.25-3 mmol/L |
| BG | Blood Glucose | 3.9-11.1 mmol/L |
| OI | Oxygenation Index | 400-500 mmHg |

**Table S2 Imputation percentage of the missing data for each variable.**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Percentage (%) | Variable | Percentage (%) |
| BG | 13.02083 | K | 0.520833 |
| Lat | 5.729167 | Group | 0 |
| Barthel index | 5.208333 | Sex | 0 |
| ESR | 4.6875 | Age | 0 |
| INR | 4.166667 | Duration | 0 |
| FDP | 4.166667 | Fever | 0 |
| PT | 3.645833 | Cough | 0 |
| APTT | 3.645833 | Myalgia | 0 |
| D-Dimer | 3.645833 | Diarrhea | 0 |
| Fib | 3.645833 | Chest pain | 0 |
| PCT | 3.125 | Dyspnea | 0 |
| CRP | 2.604167 | Digestive disease | 0 |
| PO2 | 2.083333 | Cardiovascular disease | 0 |
| SO2 | 2.083333 | Cerebrovascular disease | 0 |
| Ca+ | 2.083333 | Other | 0 |
| PH | 1.5625 | COPD | 0 |
| PCO2 | 1.5625 | Chronic kidney disease | 0 |
| Bun | 1.041667 | Diabetes | 0 |
| Crea | 1.041667 | WBC | 0 |
| UA | 1.041667 | Hb | 0 |
| Alb | 0.520833 | PLT | 0 |
| ALT | 0.520833 | LYMPH | 0 |
| AST | 0.520833 | Na+ | 0 |
| TBIL | 0.520833 | OI | 0 |

**Table S3:** **SVM performance of all 10 under-sampling repetitions when using all self-evaluation and lab-examination indicators.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Repetition | Accuracy | P Value | Sensitivity | Specificity | Precision | Recall | F1 |
| 1 | 0.9 | 0.021 | 0.92 | 0.88 | 0.91 | 0.92 | 0.9 |
| 2 | 0.93 | 0.011 | 0.94 | 0.92 | 0.93 | 0.94 | 0.93 |
| 3 | 0.91 | 0.038 | 0.92 | 0.9 | 0.92 | 0.92 | 0.91 |
| 4 | 0.95 | 0.006 | 0.98 | 0.92 | 0.93 | 0.98 | 0.95 |
| 5 | 0.92 | 0.026 | 0.94 | 0.9 | 0.91 | 0.94 | 0.92 |
| 6 | 0.93 | 0.008 | 0.96 | 0.9 | 0.92 | 0.96 | 0.93 |
| 7 | 0.95 | 0.013 | 0.96 | 0.94 | 0.95 | 0.96 | 0.95 |
| 8 | 0.91 | 0.027 | 0.94 | 0.88 | 0.9 | 0.94 | 0.91 |
| 9 | 0.94 | 0.021 | 0.96 | 0.92 | 0.93 | 0.96 | 0.94 |
| 10 | 0.91 | 0.016 | 0.92 | 0.9 | 0.91 | 0.92 | 0.91 |
| Mean | 0.93 | 0.019 | 0.94 | 0.91 | 0.93 | 0.94 | 0.93 |
| Std | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |

**Table S4: Weight of SVM classifier when using all self-evaluation and lab-examination indicators.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Indicator | Weight | No | Indicator | Weight |
| 1 | Duration | 1 | 25 | AST | 0.159363 |
| 2 | CRP | 0.542292 | 26 | COPD | 0.149496 |
| 3 | WBC | 0.495955 | 27 | ALT | 0.149057 |
| 4 | Barthel index | 0.454618 | 28 | PH | 0.124577 |
| 5 | Ca+ | 0.405296 | 29 | Chronic kidney disease | 0.117703 |
| 6 | PLT | 0.390132 | 30 | Na+ | 0.113057 |
| 7 | FDP | 0.330447 | 31 | Dyspnea | 0.110403 |
| 8 | Age | 0.328491 | 32 | PCO2 | 0.106215 |
| 9 | OI | 0.327799 | 33 | Diabetes | 0.08971 |
| 10 | LYMPH | 0.311583 | 34 | ESR | 0.079208 |
| 11 | D-Dimer | 0.302964 | 35 | K+ | 0.073833 |
| 12 | PT | 0.291875 | 36 | Chest pain | 0.072742 |
| 13 | Hb | 0.271497 | 37 | Myalgia | 0.070953 |
| 14 | Crea | 0.243664 | 38 | Cardiovascular disease | 0.066533 |
| 15 | Alb | 0.241221 | 39 | APTT | 0.06187 |
| 16 | PO2 | 0.236412 | 40 | Bun | 0.058233 |
| 17 | Fib | 0.216459 | 41 | TBIL | 0.055934 |
| 18 | Cerebrovascular disease | 0.214433 | 42 | Diarrhea | 0.047269 |
| 19 | SO2 | 0.21348 | 43 | UA | 0.041841 |
| 20 | INR | 0.188161 | 44 | Fever | 0.033866 |
| 21 | BG | 0.177129 | 45 | Sex | 0.029157 |
| 22 | Lat | 0.172774 | 46 | Other | 0.012822 |
| 23 | PCT | 0.172576 | 47 | Digestive disease | 0.008428 |
| 24 | Cough | 0.162718 |  |  |  |

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**Figure S1:** Histograms of survivors and non-survivors at different ages.