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| Supplementary table 3: Univariate and multivariate analyses for overall survival (Cox proportional hazard model). |
| 1. Leave one out cross validation |
|  | Support vector machine | Neural network model | Multinomial log-linear |
|  | multivariate | univariate | multivariate | univariate | multivariate | univariate |
|  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  |
| prediction | 0.017 | \* | 0.001 | \*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | 0.140 |  | 0.116 |  |
| T | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* |
| N | 0.952 |  | 0.002  | \*\* | 0.642 |  | 0.002  | \*\* | 0.789 |  | 0.002  | \*\* |
| M | 0.209 |  | 0.097  | . | 0.181 |  | 0.097  | . | 0.097 | . | 0.097  | . |
| Age | 0.103 |  | <0.001 | \*\*\* | 0.098 | . | <0.001 | \*\*\* | 0.101 |  | <0.001 | \*\*\* |
| ASA score | 0.893 |  | <0.001 | \*\*\* | 0.787 |  | <0.001 | \*\*\* | 0.569 |  | <0.001 | \*\*\* |
| chemotherapy | 0.018 | \* | <0.001 | \*\*\* | 0.046 | \* | <0.001 | \*\*\* | 0.019 | \* | <0.001 | \*\*\* |
| co-morbidities | 0.768 |  | 0.205  |  | 0.574 |  | 0.205  |  | 0.886 |  | 0.205  |  |
| 2. 3-fold cross validation |
|  | Support vector machine | Neural network model | Multinomial log-linear |
|  | multivariate | univariate | multivariate | univariate | multivariate | univariate |
|  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  |
| prediction | 0.002 | \*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | 0.010 | \* | 0.002 | \*\* |
| T | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* |
| N | 0.597 |  | 0.002  | \*\* | 0.701 |  | 0.002  | \*\* | 0.772 |  | 0.002  | \*\* |
| M | 0.270 |  | 0.097  | . | 0.192 |  | 0.097  | . | 0.086 |  | 0.097  | . |
| Age | 0.109 |  | <0.001 | \*\*\* | 0.093 | . | <0.001 | \*\*\* | 0.105 |  | <0.001 | \*\*\* |
| ASA score | 0.944 |  | <0.001 | \*\*\* | 0.769 |  | <0.001 | \*\*\* | 0.737 |  | <0.001 | \*\*\* |
| chemotherapy | 0.032 | \* | <0.001 | \*\*\* | 0.052 | . | <0.001 | \*\*\* | 0.041 | \* | <0.001 | \*\*\* |
| co-morbidities | 0.740 |  | 0.205  |  | 0.491 |  | 0.205  |  | 0.960 |  | 0.205  |  |
| 3. 4-fold cross validation |
|  | Support vector machine | Neural network model | Multinomial log-linear |
|  | multivariate | univariate | multivariate | univariate | multivariate | univariate |
|  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  |
| prediction | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | 0.085 | . | <0.001 | \*\*\* |
| T | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* |
| N | 0.799 |  | 0.002  | \*\* | 0.702 |  | 0.002  | \*\* | 0.986 |  | 0.002  | \*\* |
| M | 0.149 |  | 0.097  | . | 0.185 |  | 0.097  | . | 0.095 | . | 0.097  | . |
| Age | 0.091 | . | <0.001 | \*\*\* | 0.096 | . | <0.001 | \*\*\* | 0.120 |  | <0.001 | \*\*\* |
| ASA score | 0.906 |  | <0.001 | \*\*\* | 0.832 |  | <0.001 | \*\*\* | 0.601 |  | <0.001 | \*\*\* |
| chemotherapy | 0.019 | \* | <0.001 | \*\*\* | 0.046 | \* | <0.001 | \*\*\* | 0.027 | \* | <0.001 | \*\*\* |
| co-morbidities | 0.880 |  | 0.205  |  | 0.520 |  | 0.205  |  | 0.944 |  | 0.205  |  |
| 4. 10-fold cross validation |
|  | Support vector machine | Neural network model | Multinomial log-linear |
|  | multivariate | univariate | multivariate | univariate | multivariate | univariate |
|  | p value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  |
| prediction | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | 0.015  | \* | 0.006  | \*\* |
| T | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* | <0.001 | \*\*\* |
| N | 0.841  |  | 0.002  | \*\* | 0.707 |  | 0.002  | \*\* | 0.906  |  | 0.002  | \*\* |
| M | 0.173  |  | 0.097  | . | 0.186 |  | 0.097  | . | 0.072  | . | 0.097  | . |
| Age | 0.101  |  | <0.001 | \*\*\* | 0.094 | . | <0.001 | \*\*\* | 0.107  |  | <0.001 | \*\*\* |
| ASA score | 0.805  |  | <0.001 | \*\*\* | 0.793 |  | <0.001 | \*\*\* | 0.622 |  | <0.001 | \*\*\* |
| chemotherapy | 0.014  | \* | <0.001 | \*\*\* | 0.049 | \* | <0.001 | \*\*\* | 0.018 | \* | <0.001 | \*\*\* |
| co-morbidities | 0.670  |  | 0.205  |  | 0.516 |  | 0.205  |  | 0.781 |  | 0.205  |  |
| 5. Test cohort |
|  | Support vector machine | Neural network model | Multinomial log-linear |
|  | multivariate | univariate | multivariate | univariate | multivariate | univariate |
|  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  | *p* value |  |
| prediction | 0.059 | . | <0.001 | \*\*\* | 0.011 | \* | <0.001 | \*\*\* | 0.135 |  | 0.070 | . |
| T | 0.002 | \*\* | <0.001 | \*\*\* | 0.002 | \*\* | <0.001 | \*\*\* | 0.001 | \*\* | <0.001 | \*\*\* |
| N | 0.347 |  | 0.083 | . | 0.325 |  | 0.083 | . | 0.459 |  | 0.083 | . |
| M | 0.765 |  | 0.656 |  | 0.679 |  | 0.656 |  | 0.825 |  | 0.656 |  |
| Age | 0.285 |  | <0.001 | \*\*\* | 0.298 |  | <0.001 | \*\*\* | 0.362 |  | <0.001 | \*\*\* |
| ASA score | 0.836 |  | 0.002 | \*\* | 0.720 |  | 0.002 | \*\* | 0.704 |  | 0.002 | \*\* |
| chemotherapy | 0.044 | \* | <0.001 | \*\*\* | 0.035 | \* | <0.001 | \*\*\* | 0.073 | . | <0.001 | \*\*\* |
| co-morbidities | 0.729 |  | 0.074 | . | 0.736 |  | 0.074 | . | 0.926 |  | 0.074 | . |