Supportive information Table 4: Univariable and multivariable ordinal regression analysis to evaluate the influence of various variables on graded morbidity. Bold p-values (p<0.150) in univariable regression analysis were included in multivariable regression analysis.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | | | **Univariable** | | | **Multivariable** | | |
| **Odds ratio** | **95% CI** | **p-value** | **Odds ratio** | **95% CI** | **p-value** |
| *Pre-operative details* | | |  |  |  |  |  |  |
| Male gender | | | 0.7461 | 0.425-1.310 | 0.310 |  |  |  |
| Age at resection of metastases in years | | | 0.998 | 0.972-1.024 | 0.867 |  |  |  |
| Body mass index | | | 0.970 | 0.912-1.031 | 0.312 |  |  |  |
| Hemoglobin in g/dl | | | 0.769 | 0.638-0.927 | **0.006** |  |  |  |
| Leukocytes in tsd/µl | | | 1.218 | 1.065-1.393 | **0.005** |  |  |  |
| Platelets in tsd/µl | | | 1.005 | 1.001-1.008 | **0.007** |  |  |  |
| Quick in % | | | 0.989 | 0.969-1.011 | 0.328 |  |  |  |
| ASAT (GOT) in U/l | | | 1.001 | 0.992-1.010 | 0.909 |  |  |  |
| Creatinine in µmol/l | | | 0.985 | 0.967-1.003 | **0.099** |  |  |  |
| Resection severity index | | | 1.154 | 0.976-1.366 | **0.099** |  |  |  |
| Fibrosis-4 score | | | 0.926 | 0.666-1.304 | 0.654 |  |  |  |
|  |  |  |  |  |  |  |  |  |
| *Therapy of metastases* | | |  |  |  |  |  |  |
| Neoadjuvant chemotherapy 5-FU + Oxaliplatin | | | 0.751 | 0.251-2.252 | 0.599 |  |  |  |
| Neoadjuvant chemotherapy 5-FU + Irinotecan | | | 3.999 | 1.762-9.076 | **0.002** | **4.315** | **1.751-10.634** | **0.003** |
| Neoadjuvant chemotherapy Other | | | 2.621 | 0.474-14.504 | 0.302 |  |  |  |
|  |  |  |  |  |  |  |  |  |
| *Primary tumor characteristics* | | |  |  |  |  |  |  |
| Location | Cecum | | reference | | 0.446 |  |  |  |
| Colon ascendens | | 5.049 | 0.589-43.264 |  |  |  |
| Colon transversum | | 9.254 | 0.806-106.259 |  |  |  |
| Colon descendens | | 3.786 | 0.354-40.546 |  |  |  |
| Colon sigmoideum | | 3.316 | 0.413-26.610 |  |  |  |
| Rectum | | 3.867 | 0.491-30.433 |  |  |  |
| UICC 7 stages | I | | reference | | 0.717 |  |  |  |
| IIa | | 0.620 | 0.141-3.101 |  |  |  |
| IIb | | 0.000 | 0.000-Infinity |  |  |  |
| IIIa | | 0.551 | 0.047-6.509 |  |  |  |
| IIIb | | 0.455 | 0.102-2.037 |  |  |  |
| IIIc | | 0.792 | 0.192-3.278 |  |  |  |
| IV | | 0.907 | 0.237-3.478 |  |  |  |
| Tumor grading | G1 | | reference | | 0.474 |  |  |  |
| G2 | | 1.104 | 0.126-9.712 |  |  |  |
| G3 | | 0.478 | 0.036-6.444 |  |  |  |
| R status | R0 | | reference | | 0.979 |  |  |  |
| R1 | | 0.972 | 0.111-8.535 |  |  |  |
| Neoadjuvant chemotherapy 5-FU | | | 0.592 | 0.200-1.751 | 0.316 |  |  |  |
| Neoadjuvant chemotherapy 5-FU + Oxaliplatin | | | 2.284 | 0.573-9.099 | 0.270 |  |  |  |
| Neoadjuvant chemotherapy Other | | | 2.299 | 0.679-7.782 | 0.205 |  |  |  |
| Adjuvant chemotherapy 5-FU | | | 0.488 | 0.252-0.945 | **0.026** |  |  |  |
| Adjuvant chemotherapy 5-FU + Oxaliplatin | | | 1.080 | 0.598-1.952 | 0.798 |  |  |  |
| Adjuvant chemotherapy 5-FU + Irinotecan | | | 0.000 | 0.000-Infinity | **0.039** | <0.001 | 0.000-0.000 | 0.011 |
| Adjuvant chemotherapy Other | | | 0.847 | 0.338-2.125 | 0.719 |  |  |  |
| Conversion chemotherapy 5-FU | | | 1.403 | 0.375-5.244 | 0.626 |  |  |  |
| Conversion chemotherapy 5-FU + Oxaliplatin | | | 2.023 | 0.752-5.443 | 0.184 |  |  |  |
| Conversion chemotherapy 5-FU + Irinotecan | | | 1.702 | 0.757-3.829 | 0.214 |  |  |  |
| Adjuvant radiation | | | 0.698 | 0.344-1.420 | 0.309 |  |  |  |
| Local relapse | | | 0.578 | 0.129-2.599 | 0.446 |  |  |  |
|  |  |  |  |  |  |  |  |  |
| *Operative details* | | |  |  |  |  |  |  |
| Left atypical liver resection | | 1 point | reference | | **0.006** |  |  |  |
| Right atypical liver resection | |  |  |  |
| Left segmental liver resection | | 2 points | 1.867 | 0.822-4.241 |  |  |  |
| Right segmental liver resection | |  |  |  |
| Bilateral atypical liver resection | |  |  |  |
| Left hemihepatectomy | | 3 points | 0.413 | 0.051-3.371 |  |  |  |
| Right hemihepatectomy | | 4 points | 2.016 | 0.827-4.913 |  |  |  |
| Extended left hepatectomy | | 5 points | 6.197 | 2.404-15.976 |  |  |  |
| Extended right hepatectomy | | 6 points | 2.957 | 0.980-8.925 |  |  |  |
| Left hepatectomy and right atypical liver resection | |  |  |  |
| Right hepatectomy and left atypical resection | | 7 points | 2.050 | 0.588-7.146 |  |  |  |
| Operative duration in min | | | 1.010 | 1.006-1.013 | **<0.001** | **1.008** | **1.003-1.012** | **0.001** |
| Duration of Pringle’s maneuver in min | | | 1.002 | 0.983-1.021 | 0.870 |  |  |  |
| Intra-operative transfusion of pRBCs | | | 4.213 | 2.369-7.491 | **<0.001** |  |  |  |
| Units of intra-operatively transfused pRBCs | | | 1.286 | 1.168-1.417 | **<0.001** | **1.198** | **1.077-1.332** | **<0.001** |
| Grading metastase | G1 | | <0.001 | 0.000-0.000 | **0.098** |  |  |  |
| G2 | | reference | |  |  |  |
| G3 | | <0.001 | 0.000-0.000 |  |  |  |
| R status | R0 | | reference | | **0.050** |  |  |  |
| R1 | | 3.532 | 1.324-9.423 |  |  |  |
| R2 | | 2.578 | 0.229-29.015 |  |  |  |
| Distance to resection margin in mm | | | 0.988 | 0.958-1.020 | 0.436 |  |  |  |
| Macrovesicular steatosis in % | | | 0.973 | 0.948-0.999 | **0.023** | 0.965 | 0.939-0.993 | 0.006 |
| Size of largest metastases in mm | | | 1.016 | 1.009-1.024 | **<0.001** |  |  |  |