Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.
eFigure.

2384 patients diagnosed with resectable CRLM between January 2000 and December 2019

DR as first-line treatment (n=1597)
SR as first-line treatment (n=787)

540 sequentially excluded
- 43 missing surgery data
- 32 technical failure of surgery
- 52 missing follow-up data
- 74 extrahepatic metastasis
- 124 had other colorectal tumors
- 215 had other malignant tumors

275 sequentially excluded
- 11 missing surgery data
- 19 technical failure of surgery
- 31 missing follow-up data
- 58 extrahepatic metastasis
- 83 had other colorectal tumors
- 73 had other malignant tumors

Study patients (n=1569)

Subgroup analysis
- KRAS wild-type
- KRAS mutation

OS analysis cohort (n=1569)

DR (n=1057) SR (n=512)
Matched patients (n=990)

CSS analysis cohort (n=1346)

Subgroup analysis
- KRAS wild-type
- KRAS mutation

DR (n=885) SR (n=461)
Matched patients (n=900)

Complications and OS analysis

CSS analysis

223 excluded as death irrelevant to cancer
**eTable 1. Patient Characteristics of Patients for Cancer-Specific Survival Analysis**

| Characteristic a | Patients, No (%) | Before PSM (n=1346) | After PSM (n=900) | P value b | P value b |
|-----------------|------------------|---------------------|-------------------|-----------|-----------|
|                 | DR (n=885)       | SR (n=461)          |                   |           |           |
| Sex             |                  |                     |                   |           |           |
| Male            | 625 (70.6)       | 283 (61.4)          | < .001            | 272 (60.4) | 283 (62.9) |
| Female          | 260 (29.4)       | 178 (38.6)          | 178 (39.6)        | 167 (37.1) |           |
| Age at diagnosis, y |                |                     |                   |           |           |
| < 50            | 197 (22.3)       | 105 (22.8)          | .83               | 101 (22.4) | 103 (22.9) |
| ≥50             | 688 (77.7)       | 356 (77.2)          | 349 (77.6)        | 347 (72.1) |           |
| Tumor sidedness |                  |                     |                   |           |           |
| Left sidedness  | 688 (77.7)       | 291 (63.1)          | < .001            | 307 (68.3) | 291 (64.7) |
| Right sidedness | 197 (22.3)       | 170 (36.9)          | 143 (31.7)        | 159 (35.3) |           |
| c/p T stage     |                  |                     |                   |           |           |
| T1-T2           | 89 (10.0)        | 45 (9.7)            | .92               | 42 (9.4)  | 43 (9.5)  |
| T3-T4           | 796 (90.0)       | 416 (90.3)          | 408 (90.6)        | 407 (90.5) |           |
| c/p N stage     |                  |                     |                   |           |           |
| N0              | 274 (30.9)       | 150 (32.6)          | .08               | 136 (30.2) | 146 (32.5) |
| N1              | 323 (36.5)       | 188 (40.8)          | 177 (39.4)        | 184 (41.0) |           |
| N2              | 288 (32.6)       | 123 (26.6)          | 138 (30.4)        | 120 (26.5) |           |
| Tumor differentiation |           |                     |                   |           |           |
| Poor            | 258 (29.1)       | 106 (23.1)          | .02               | 113 (25.1) | 105 (23.3) |
| Moderate/well   | 627 (70.9)       | 355 (76.9)          | 337 (74.9)        | 345 (76.7) |           |
| Metastatic sites|                  |                     |                   |           |           |
| Maximum size | ≤5cm | > 5cm | Numbers | ≤10 | > 10 |
|-------------|------|-------|---------|-----|------|
|              | 755 (85.3) | 387 (83.9) | .52 | 382 (84.9) | 376 (83.8) | .65 |
|              | 130 (14.7) | 74 (16.1) |       | 68 (15.1) | 74 (16.2) |       |
| Distributions |       |       |       |       |       |
| Unilobar     | 514 (58.1) | 288 (62.5) | .12 | 268 (59.5) | 280 (62.2) | .41 |
| Bilobar      | 371 (41.9) | 173 (37.5) |       | 182 (40.5) | 170 (37.8) |       |
| Anticipated hepatectomy | .03 |       |       |       |       |
| Minor hepatectomy | 649 (73.3) | 363 (78.7) | .12 | 337 (74.9) | 353 (78.4) | .21 |
| Major hepatectomy | 236 (26.7) | 98 (21.3) |       | 113 (25.1) | 97 (21.6) |       |
| KRAS/BRAF status |       |       |       |       |       |
| KRAS wild-type | 420 (47.5) | 230 (49.9) | .74 | 220 (48.9) | 224 (49.7) | .91 |
| KRAS mutation | 334 (37.7) | 164 (35.6) |       | 167 (37.1) | 162 (36.1) |       |
| BRAF mutation | 42 (4.8) | 18 (4.0) |       | 20 (4.4) | 17 (3.8) |       |
| NA | 89 (10.0) | 48 (10.5) |       | 43 (9.6) | 47 (10.4) |       |
| Chemotherapy |       |       |       |       |       |
| Preoperative chemotherapy | 287 (32.4) | 212 (46.0) | .02 | 190 (42.2) | 201 (44.7) | .50 |
| Interval chemotherapy | 676 (76.4) | NA |       | 362 (80.5) | NA |       |
| Postoperative chemotherapy | 597 (67.5) | 301 (65.3) | .43 | 303 (67.3) | 299 (66.4) | .78 |

Abbreviations: PSM, propensity score matching; DR, delayed resection; SR, simultaneous resection; y, years; c/p, clinically and pathologically; T, tumor; N, nodes; NA, not available.

a Categorical variables were presented as No. (%).

b P values were calculated using the χ2 test for categorical variables.

c Major hepatectomy is defined as resection of three or more liver segments.
### eTable 2. Numbers and Percentages of Patients Who Had At Least One Major Complications After Corresponding Unbiased Estimates

| Characteristic    | DR (n=495) | SR (n=495) | P value b |
|-------------------|------------|------------|-----------|
| Major complications | 148 (30.0) | 169 (34.1) | .89       |
| Colon             | 120 (24.3) | 135 (27.2) |           |
| Rectum            | 28 (5.6)   | 34 (6.8)   |           |

Abbreviations: DR, delayed resection; SR, simultaneous resection.

a Categorical variable as No. (%).

b P values were calculated using the χ² test for categorical variables.
### eTable 3. Type and Number of Major Complications After Corresponding Unbiased Estimates

| Complication types | DR (n=495) | SR (n=495) | P value |
|--------------------|------------|------------|---------|
| Digestive complications | 46 (9.3) 58 (11.7) | .35 |
| Hemorrhage | 5 10 | |
| Peritonitis | 14 23 | |
| Intra-abdominal abscess | 12 10 | |
| Anastomosis fistula | 5 10 | |
| Bowel obstruction | 10 5 | |
| Hepatic complications | 55 (11.2) 61 (12.3) | .28 |
| Hemorrhage | 10 0 | |
| Bile leakage | 14 19 | |
| Sub-phrenic abscess | 26 42 | |
| Severe liver failure | 5 0 | |
| General complications | 47 (9.4) 50 (10.1) | .74 |
| Perioperative death | 5 5 | |
| Pulmonary infection | 5 10 | |
| Wound abscess | 32 30 | |
| Severe sepsis or septic shock | 5 5 | |
| Acute renal insufficiency | 0 0 | |
| Clavien-Dindo Classification c | n=167 n=179 | .97 |
| Grade I | 50 (29.9) 55 (30.9) | |
| Grade II | 30 (18.1) 31 (17.4) | |
| Grade III | 71 (42.5) 78 (43.6) | |
| IIIa | 34 (20.5) 37 (20.8) | |
| IIIb | 37 (22.0) 41 (22.8) | |
| Grade IV | 11 (6.3) 10 (5.4) | |
| IVa | 3 (1.6) 5 (2.7) | |
| IVb | 8 (4.7) 5 (2.7) | |
| Grade V | 5 (3.1) 5 (2.7) | |

Abbreviation: DR, delayed resection; SR, simultaneous resection.

- a Categorical variables were presented as No. (%).
- b P values were calculated using the \( \chi^2 \) test for categorical variables.
- c In DR group, we only considered the highest type of the 2 procedures.
## eTable 4. Patient Characteristics by Treatment in KRAS-WT Patients

| Characteristic | Patients, No (%) | OS cohort | CSS cohort |
|----------------|------------------|-----------|------------|
|                | Before PSM (n=757) | After PSM (n=300) | Before PSM (n=650) | After PSM (n=278) |
|                | DR (n=517) | SR (n=240) | DR (n=150) | SR (n=150) | DR (n=420) | SR (n=230) | DR (n=139) | SR (n=139) |
| **Sex**        | .06       | .90       | .008      | .52       | .008      | .52       | .008      | .52       |
| Male           | 380 (73.6) | 160 (66.7) | 102 (67.7) | 100 (66.7) | 319 (75.9) | 152 (66.2) | 98 (70.5) | 92 (66.2) |
| Female         | 137 (26.4) | 80 (33.3)  | 48 (32.3)  | 50 (33.3)  | 101 (24.1) | 78 (33.8)  | 41 (29.5) | 47 (33.8) |
| **Age at diagnosis, y** | .17       | >.99      | .71       | .51       | .17       | >.99      | .71       | .51       |
| < 50           | 135 (26.1) | 51 (21.4)  | 40 (26.7)  | 40 (26.7)  | 110 (26.3) | 64 (27.7)  | 44 (31.7) | 38 (27.3) |
| ≥50            | 382 (73.9) | 189 (78.6) | 110 (73.3) | 110 (73.3) | 310 (73.7) | 166 (72.3) | 95 (68.3) | 101 (72.7) |
| **Tumor sidedness** | <.001     | .53       | .05       | .16       | <.001     | .53       | .05       | .16       |
| Left sidedness | 458 (88.6) | 182 (76.0) | 129 (86.0) | 124 (82.7) | 376 (89.5) | 193 (83.9) | 125 (89.9) | 116 (83.5) |
| Right sidedness| 59 (11.4)  | 58 (24.0)  | 21 (14.0)  | 26 (17.3)  | 44 (10.5)  | 37 (16.1)  | 14 (10.1) | 23 (16.5) |
| **Perioperative chemotherapy** | .43       | .82       | .01       | .55       | .43       | .82       | .01       | .55       |
| Yes            | 220 (42.5) | 110 (46.0) | 78 (52.0)  | 81 (54.0)  | 180 (42.9) | 122 (53.0) | 59 (42.4) | 65 (46.8) |
| No             | 297 (57.5) | 130 (54.0) | 72 (48.0)  | 69 (46.0)  | 240 (57.1) | 108 (47.0) | 80 (57.6) | 74 (53.2) |
| **c/p T stage** | .71       | .85       | .46       | .86       | .71       | .85       | .46       | .86       |
| T1-T2          | 60 (11.5)  | 25 (10.3)  | 17 (11.6)  | 15 (10.3)  | 55 (13.0)  | 25 (10.9)  | 20 (14.4) | 18 (12.9) |
| T3-T4          | 457 (88.5) | 215 (89.7) | 133 (88.4) | 135 (89.7) | 365 (87.0) | 205 (89.1) | 119 (85.5) | 121 (87.0) |
| **c/p N stage** | .30       | .18       | .30       | .62       | .30       | .18       | .30       | .62       |
| N0             | 144 (27.8) | 66 (27.4)  | 41 (27.5)  | 40 (26.9)  | 123 (29.3) | 62 (27.0)  | 44 (31.6) | 38 (27.0) |
| N1             | 203 (39.2) | 107 (44.5) | 53 (35.6)  | 67 (44.8)  | 164 (39.1) | 104 (45.3) | 62 (44.4) | 63 (45.3) |
| N2             | 170 (33.0) | 67 (27.9)  | 55 (36.9)  | 42 (28.3)  | 133 (31.6) | 64 (27.7)  | 33 (24.1) | 39 (27.7) |
| Tumor differentiation   |   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| Poor                   | 140 (27.1) | 53 (21.9) | 46 (30.8) | 45 (29.9) | 118 (28.2) | 49 (21.3) |
| Moderate/well          | 377 (72.9) | 187 (78.1) | 104 (69.2) | 105 (70.1) | 302 (71.8) | 181 (78.7) |

| Metastatic sites       |   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| Maximum size           |   |   |   |   |   |   |
| ≤5cm                   | 419 (81.1) | 206 (85.8) | 115 (76.4) | 116 (77.6) | 355 (81.7) | 186 (80.9) |
| > 5cm                  | 98 (18.9) | 34 (14.2) | 35 (23.6) | 34 (22.4) | 65 (18.3) | 44 (19.1) |

| Numbers                |   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| ≤10                    | 456 (88.2) | 219 (91.3) | 134 (89.5) | 133 (89.0) | 356 (84.8) | 205 (89.1) |
| > 10                   | 61 (11.8) | 21 (18.7) | 16 (10.5) | 17 (11.0) | 64 (15.2) | 25 (10.9) |

| Distributions          |   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| Unilobar               | 259 (50.0) | 128 (53.3) | 88 (58.6) | 90 (60.3) | 219 (52.1) | 140 (61.0) |
| Bilobar                | 258 (50.0) | 112 (46.7) | 62 (41.3) | 60 (39.7) | 201 (47.9) | 90 (39.0) |

| Anticipated hepatectomy|   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| Minor hepatectomy      | 381 (73.6) | 188 (78.2) | 112 (74.5) | 116 (77.3) | 311 (74.1) | 180 (78.2) |
| Major hepatectomy b    | 136 (26.4) | 52 (21.8) | 38 (25.5) | 34 (22.7) | 109 (25.9) | 50 (21.8) |

Abbreviations: WT, wild-type; PSM, propensity score matching; DR, delayed resection; SR, simultaneous resection; y, years; c/p, clinically and pathologically; T, tumor; N, nodes.

a Categorical variables were presented as No. (%).
b Major hepatectomy is defined as resection of three or more liver segments.
## eTable 5. Patient Characteristics by Treatment in KRAS-MT Patients

| Characteristic a | Patients, No (%) | OS cohort | CSS cohort |
|------------------|------------------|-----------|------------|
|                  | Before PSM (n=592) | After PSM (n=278) | Before PSM (n=498) | After PSM (n=220) |
|                  | DR (n=388) | SR (n=204) | DR (n=139) | SR (n=139) | DR (n=334) | SR (n=164) | DR (n=110) | SR (n=110) |
| **Sex**          | > .99 | .81 | .37 | > .99 |
| Male             | 236 (60.8) | 124 (60.9) | 82 (58.6) | 85 (60.9) | 224 (67.2) | 103 (62.7) | 70 (63.6) | 69 (62.7) |
| Female           | 152 (39.2) | 80 (39.1) | 57 (41.4) | 54 (39.1) | 110 (32.8) | 61 (37.3) | 40 (36.4) | 41 (37.3) |
| **Age at diagnosis, y** | .006 | .79 | .21 | > .99 |
| <50              | 80 (20.7) | 63 (30.8) | 40 (28.5) | 43 (30.8) | 54 (16.3) | 34 (20.7) | 23 (20.9) | 24 (21.8) |
| ≥50              | 308 (79.3) | 141 (69.2) | 99 (71.5) | 96 (69.2) | 280 (83.7) | 130 (79.3) | 87 (79.1) | 86 (78.2) |
| **Tumor sidedness** | < .001 | .62 | < .001 | .78 |
| Left sidedness   | 294 (75.9) | 109 (53.4) | 86 (62.1) | 81 (58.3) | 257 (76.8) | 98 (59.8) | 47 (42.4) | 44 (40.0) |
| Right sidedness  | 94 (24.1) | 95 (46.6) | 53 (38.9) | 58 (41.7) | 77 (23.2) | 66 (40.2) | 63 (57.6) | 66 (60.0) |
| **Perioperative chemotherapy** | .002 | > .99 | .02 | > .99 |
| Yes              | 121 (31.2) | 90 (44.4) | 62 (44.4) | 62 (44.4) | 107 (32.1) | 70 (42.7) | 47 (42.7) | 47 (42.7) |
| No               | 267 (68.8) | 114 (55.6) | 77 (55.6) | 77 (55.6) | 227 (67.9) | 94 (57.3) | 63 (57.3) | 63 (57.3) |
| **c/p T stage**  | > .99 | > .99 | .46 | > .99 |
| T1-T2            | 28 (7.2) | 15 (7.3) | 9 (6.5) | 10 (7.1) | 26 (7.7) | 9 (5.7) | 8 (7.7) | 6 (5.7) |
| T3-T4            | 360 (92.8) | 189 (92.7) | 130 (93.5) | 129 (92.9) | 308 (92.3) | 155 (94.3) | 102 (92.3) | 104 (94.5) |
| **c/p N stage**  | .70 | .96 | .23 | .88 |
| N0               | 101 (26.1) | 59 (29.1) | 38 (27.4) | 40 (29.1) | 88 (26.4) | 33 (28.0) | 34 (30.8) | 31 (28.0) |
| N1               | 164 (42.3) | 80 (39.4) | 56 (40.2) | 55 (39.4) | 134 (40.1) | 77 (47.0) | 41 (37.5) | 41 (37.4) |
|                | N2       | 65 (31.5) | 45 (32.4) | 44 (31.5) | 112 (33.5) | 54 (33.0) | 35 (31.8) | 38 (34.5) |
|----------------|----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| Tumor differentiation | .03      | .50       | .59       | .87       |            |           |           |           |
| Poor            | 136 (35.0) | 53 (26.0) | 42 (30.0) | 36 (26.0) | 90 (27.0)  | 40 (24.5) | 29 (26.2) | 27 (24.5) |
| Moderate/well   | 252 (66.0) | 151 (74.0) | 97 (69.8) | 103 (74.0) | 244 (73.0) | 124 (75.5) | 81 (73.8) | 83 (75.5) |

**Metastatic sites**

|                | Maximum size | .82 | .75 | .72 | .86 |
|----------------|--------------|-----|-----|-----|-----|
| ≤5cm           | 323 (83.2)   | 168 (82.2) | 117 (84.2) | 114 (82.2) | 269 (80.4) | 135 (82.2) | 88 (80.2) | 90 (82.2) |
| > 5cm          | 65 (16.8)    | 36 (17.8) | 22 (15.8) | 25 (17.8) | 65 (19.6)  | 29 (17.8) | 22 (20.0) | 20 (18.2) |
| Numbers        | .71          | .88 | .67 | .85 |
| ≤10            | 331 (85.4)   | 177 (86.8) | 113 (81.5) | 115 (82.9) | 290 (86.8) | 145 (88.4) | 94 (85.1) | 92 (83.2) |
| > 10           | 57 (14.6)    | 27 (13.2) | 26 (19.5) | 24 (17.1) | 44 (13.2)  | 19 (11.6) | 16 (14.5) | 18 (16.8) |
| Distributions  | .43          | .90 | .33 | .78 |
| Unilobar       | 224 (57.8)   | 125 (61.3) | 82 (58.9) | 80 (57.2) | 215 (64.3) | 98 (60.0) | 70 (63.9) | 67 (60.5) |
| Bilobar        | 164 (42.2)   | 79 (38.7) | 57 (41.1) | 59 (42.8) | 119 (35.6) | 66 (40.0) | 40 (36.1) | 43 (39.5) |
| Anticipated hepatectomy | .11     | .68 | .19 | .75 |
| Minor hepatectomy | 281 (73.2) | 160 (78.4) | 103 (74.3) | 107 (77.2) | 241 (72.2) | 128 (77.9) | 82 (74.7) | 85 (77.1) |
| Major hepatectomy | 107 (26.8) | 44 (21.6) | 36 (25.7) | 32 (22.8) | 93 (27.8)  | 36 (22.1) | 28 (25.3) | 25 (22.9) |

Abbreviations: MT, mutant-type; OS, overall survival; CSS, cancer-specific survival; PSM, propensity score matching; DR, delayed resection; SR, simultaneous resection; y, years; c/p, clinically and pathologically; T, tumor; N, node.

*a Categorical variables were presented as No. (%).

*b Major hepatectomy is defined as resection of three or more liver segments.
**eTable 6. The Distributions of KRAS Variant Subtypes**

| Subtypes | Patients, No (%) | OS cohort | CSS cohort |
|----------|------------------|-----------|------------|
|          |                  | DR (n=388) | SR (n=204) | DR (n=334) | SR (n=164) |
| G12D     | 127 (32.8)       | 75 (36.6)  | 109 (32.5) | 56 (33.9)  |
| G12V     | 87 (22.4)        | 54 (26.5)  | 75 (22.4)  | 50 (30.3)  |
| G12C     | 19 (4.8)         | 3 (1.5)    | 17 (5.0)   | 3 (1.8)    |
| G12A     | 10 (2.5)         | 4 (2.2)    | 8 (2.4)    | 5 (2.8)    |
| G12X     | 34 (8.7)         | 12 (6.0)   | 33 (9.9)   | 12 (7.3)   |
| G12S     | 11 (2.8)         | 11 (5.2)   | 11 (3.2)   | 8 (4.6)    |
| G13D     | 52 (13.3)        | 38 (18.7)  | 48 (14.4)  | 24 (14.7)  |

Abbreviations: OS, overall survival; CSS, cancer-specific survival; DR, delayed resection; SR, simultaneous resection.
### eTable 7. Patient Characteristics by Treatment in G12V KRAS-MT Patients

| Characteristic                 | Patients, No (%) |          |          |          |          |          |
|-------------------------------|------------------|----------|----------|----------|----------|----------|
|                               | OS cohort        | CSS cohort |
|                               | Before PSM (n=141) | After PSM (n=64) | Before PSM (n=125) | After PSM (n=54) |
|                               | DR (n=87) SR (n=54) | DR (n=32) | SR (n=32) | DR (n=75) SR (n=50) | DR (n=27) | SR (n=27) |
| Sex                           | .59 | .61 | .>.99 | .78 |
| Male                          | 55 (63.2) | 31 (57.4) | 21 (65.6) | 18 (56.3) | 46 (61.3) | 31 (62.0) | 18 (66.7) | 16 (59.3) |
| Female                        | 32 (36.8) | 23 (42.6) | 11 (34.4) | 14 (43.8) | 29 (38.7) | 19 (38.0) | 9 (33.3) | 11 (40.7) |
| Age at diagnosis, y           | .23 | .76 | .10 | .74 |
| <50                           | 18 (20.7) | 16 (29.6) | 6 (18.8) | 8 (25.0) | 16 (21.3) | 18 (36.0) | 5 (18.5) | 7 (25.9) |
| ≥50                           | 69 (79.3) | 38 (70.4) | 26 (81.2) | 24 (75.0) | 59 (78.7) | 32 (64.0) | 22 (81.5) | 20 (74.1) |
| Tumor sidedness               | <.001 | >.99 | <.001 | >.99 |
| Left sidedness                | 74 (85.1) | 19 (35.2) | 19 (59.4) | 19 (59.4) | 64 (85.3) | 16 (32.0) | 16 (59.3) | 16 (59.3) |
| Right sidedness               | 13 (14.9) | 35 (64.8) | 13 (40.6) | 13 (40.6) | 11 (14.7) | 34 (68.0) | 11 (40.7) | 11 (40.7) |
| Perioperative chemotherapy     | .84 | .79 | >.99 | .54 |
| No                            | 65 (74.7) | 42 (77.8) | 23 (71.8) | 21 (65.6) | 56 (74.7) | 37 (74.0) | 21 (77.8) | 18 (66.7) |
| Yes                           | 22 (25.3) | 12 (22.2) | 9 (28.2) | 11 (34.4) | 19 (25.3) | 13 (26.0) | 6 (22.2) | 9 (33.3) |
| c/p T stage                   | >.99 | >.99 | >.99 | >.99 |
| T1-T2                         | 11 (12.6) | 6 (11.1) | 4 (12.5) | 3 (9.4) | 8 (10.7) | 6 (12.0) | 3 (11.1) | 2 (7.4) |
| T3-T4                         | 76 (87.4) | 48 (88.9) | 28 (87.5) | 29 (90.6) | 67 (89.3) | 44 (88.0) | 24 (88.9) | 25 (92.6) |
| c/p N stage                   | .78 | .67 | .89 | .66 |
| N0                            | 28 (32.2) | 18 (33.3) | 12 (37.5) | 11 (34.4) | 25 (33.3) | 15 (30.0) | 10 (37.0) | 11 (40.7) |
| N1                            | 37 (42.5) | 20 (37.1) | 14 (43.8) | 12 (37.5) | 30 (40.0) | 20 (40.0) | 10 (37.0) | 7 (26.0) |
| N2     | 22 (25.3) | 16 (29.6) | 6 (18.8) | 9 (28.1) | 20 (26.7) | 15 (30.0) | 7 (25.9) | 9 (33.3) |
| Tumor differentiation | .71 | > .99 | > .99 | .74 |
| Poor | 29 (33.3) | 16 (29.6) | 9 (28.1) | 10 (31.3) | 22 (29.3) | 15 (30.0) | 5 (18.5) | 7 (25.9) |
| Moderate/well | 58 (66.7) | 38 (70.4) | 23 (71.9) | 22 (68.7) | 53 (70.7) | 35 (70.0) | 22 (81.5) | 20 (74.1) |
| Metastatic sites | | | | | | | | |
| Maximum size | .55 | > .99 | .67 | > .99 |
| ≤5cm | 65 (74.7) | 43 (79.6) | 26 (81.3) | 25 (78.1) | 57 (76.0) | 40 (80.0) | 20 (74.1) | 20 (74.1) |
| > 5cm | 22 (25.3) | 11 (20.4) | 6 (18.7) | 7 (21.9) | 18 (24.0) | 10 (20.0) | 7 (25.9) | 7 (25.9) |
| Numbers | > .99 | > .99 | .56 | > .99 |
| ≤10 | 78 (89.7) | 48 (88.9) | 31 (96.9) | 30 (93.8) | 68 (90.7) | 43 (86.0) | 25 (92.6) | 26 (96.3) |
| > 10 | 9 (10.3) | 6 (11.1) | 1 (3.1) | 2 (6.2) | 7 (9.3) | 7 (14.0) | 2 (7.4) | 1 (3.7) |
| Distributions | > .99 | > .99 | > .99 | > .99 |
| Unilobar | 55 (63.2) | 35 (64.8) | 25 (78.1) | 23 (71.9) | 50 (66.7) | 33 (66.0) | 20 (74.1) | 19 (70.4) |
| Bilobar | 32 (36.8) | 19 (35.2) | 7 (21.9) | 9 (28.1) | 25 (33.3) | 17 (34.0) | 7 (25.9) | 8 (29.6) |
| Anticipated hepatectomy | > .99 | > .99 | > .99 | > .99 |
| Minor hepatectomy | 64 (73.5) | 42 (77.6) | 25 (78.5) | 26 (79.9) | 57 (76.2) | 40 (80.3) | 21 (78.4) | 21 (78.4) |
| Major hepatectomy b | 23 (26.5) | 12 (22.4) | 7 (21.5) | 6 (20.1) | 18 (23.8) | 10 (29.7) | 6 (21.6) | 6 (21.6) |

Abbreviations: MT, mutated-type; OS, overall survival; CSS, cancer-specific survival; PSM, propensity score matching; DR, delayed resection; SR, simultaneous resection; y, years; c/p, clinically and pathologically; T, tumor; N, nodes.

a Categorical variables were presented as No. (%).
b Major hepatectomy is defined as resection of three or more liver segments.

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eTable 8. Univariate and Multivariate Analyses in Overall Survival and Cancer-Specific Survival in G12V KRAS-MT Patients With PSM

| Characteristic                              | Overall survival | Cancer-specific survival |
|---------------------------------------------|------------------|-------------------------|
|                                             | Univariate       | Multivariate            |
|                                             | $P$ value        | HR (95% CI), $P$        |
| Treatment                                   | .38              | NA                      |
| Sex                                         | .20              | NA                      |
| Sex                                         | .25              | NA                      |
| Perioperative chemotherapy                   | .06              | NA                      |
| Yes                                         | .06              | NA                      |
| No                                          | .79              | NA                      |
| Tumor sidedness                             | .84              | NA                      |
| Left sidedness                              | .79              | NA                      |
| Right sidedness                             | .79              | NA                      |
| c/p T stage                                 | .94              | NA                      |
| T1-2                                        | .55              | NA                      |
| T3-4                                        | .14              | NA                      |
| c/p N stage                                 | .11              | NA                      |
| N0                                          | .82              | NA                      |
| N1                                          | .82              | NA                      |
| N2                                          | .82              | NA                      |
| Tumor differentiation                       | .32              | NA                      |
| Moderate/well                               | .82              | NA                      |
| Poor                                        | .82              | NA                      |
| Metastatic sites                            | .57              | NA                      |
| Maximum size                                | .94              | NA                      |
| ≤5cm                                        | .56              | NA                      |
| > 5cm                                       | .56              | NA                      |
| Numbers                                     | .25              | NA                      |
| ≤10                                         | .25              | NA                      |
| > 10                                        | .25              | NA                      |
| Distributions                               | .74              | NA                      |
| Unilobar                                    | .23              | NA                      |
| Bilobar                                     | .23              | NA                      |
| Anticipated hepatectomy                     | .46              | NA                      |
| Minor hepatectomy                           | .36              | NA                      |
| Major hepatectomy a                         | .36              | NA                      |
