Stage 3 rectal cancer adjuvant management: survival analysis

Table of Contents

This project aims to

# 1 Patient baseline profiles

Comparing the baseline profiles between adjuvant chemo versus surveillance group. Compared to the adjuvant chemotherapy group, patients in the surveillence group tends to be older and present with better prognostic profile. [Add in statistics from table]

## Setting theme `JAMA`

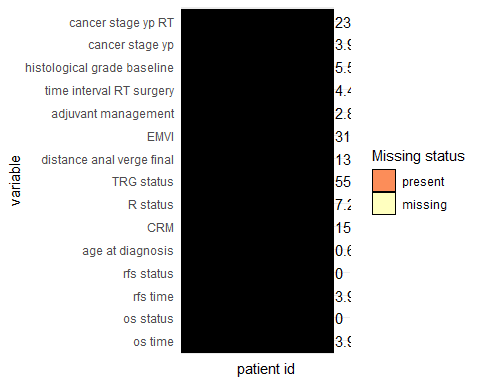
## 5 observations missing `adjuvant\_management` have been removed. To include these observations, use `forcats::fct\_explicit\_na()` on `adjuvant\_management` column before passing to `tbl\_summary()`.

## Table printed with {flextable}, not {gt}. Learn why at  
## http://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
## To suppress this message, include `message = FALSE` in the code chunk header.

| Characteristic | N | adjuvant\_chemo, N = 101 | surveillence, N = 75 | p-value1 |
| --- | --- | --- | --- | --- |
| **Age at diagnosis, Median (IQR)** | 175 | 63 (55 – 70) | 70 (62 – 78) | **<0.001** |
| **CRM, n (%)** | 148 |  |  | **0.007** |
| pos |  | 74 (88) | 45 (70) |  |
| neg |  | 10 (12) | 19 (30) |  |
| **R status, n (%)** | 167 |  |  | 0.064 |
| R0 |  | 78 (84) | 70 (95) |  |
| R1 |  | 13 (14) | 4 (5.4) |  |
| R2 |  | 2 (2.2) | 0 (0) |  |
| **TRG status, n (%)** | 80 |  |  | 0.90 |
| TRG3 |  | 12 (26) | 11 (32) |  |
| TRG0 |  | 0 (0) | 1 (2.9) |  |
| TRG1 |  | 5 (11) | 3 (8.8) |  |
| TRG2 |  | 25 (54) | 16 (47) |  |
| TRG4 |  | 2 (4.3) | 2 (5.9) |  |
| TRG5 |  | 2 (4.3) | 1 (2.9) |  |
| **Distance from anal verge, Median (IQR)** | 151 | 3.00 (1.00 – 6.00) | 4.00 (2.00 – 6.00) | 0.19 |
| **EMVI, n (%)** | 121 |  |  | **<0.001** |
| neg |  | 19 (28) | 31 (60) |  |
| pos |  | 50 (72) | 21 (40) |  |
| **Time between radiotherapy and surgery, Median (IQR)** | 173 | 87 (77 – 100) | 89 (77 – 118) | 0.26 |
| **Baseline histological grade, n (%)** | 166 |  |  | 0.90 |
| G3 |  | 12 (13) | 10 (14) |  |
| G1 |  | 1 (1.1) | 0 (0) |  |
| G2 |  | 82 (86) | 61 (86) |  |
| **Cancer staging post surgery, n (%)** | 172 |  |  | **<0.001** |
| stage\_3 |  | 32 (32) | 9 (12) |  |
| stage\_0 |  | 8 (8.1) | 11 (15) |  |
| stage\_1 |  | 15 (15) | 35 (48) |  |
| stage\_2 |  | 44 (44) | 18 (25) |  |
| **Cancer staging post radiotherapy, n (%)** | 136 |  |  | **0.011** |
| stage\_3 |  | 34 (44) | 18 (31) |  |
| stage\_0 |  | 2 (2.6) | 2 (3.4) |  |
| stage\_1 |  | 8 (10) | 19 (33) |  |
| stage\_2 |  | 33 (42) | 19 (33) |  |
| stage\_4 |  | 1 (1.3) | 0 (0) |  |
| 1Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test | | | | |

# 2 Missing data pattern

TRG status, EMVI and cancer stage post radiotherapy are observed to display more than 20% missingness. These co-variates are excluded from subsequent multivariate analysis.

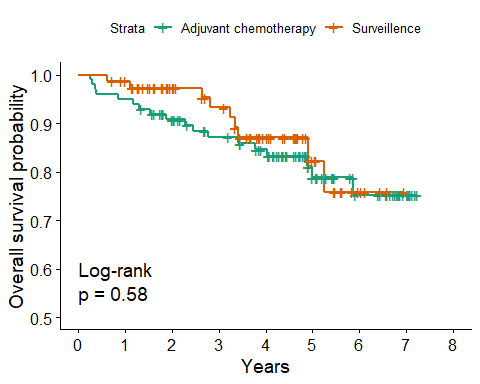


# 3 Survival analysis

## 3.1 KM curve and log-rank test

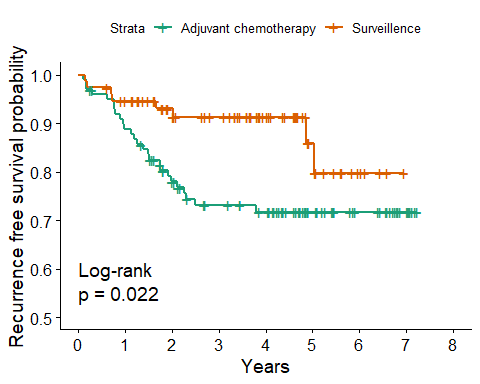
No significant difference in overall survival was detected between the KM curve of two groups using log-rank test (p=0.58)

### 3.1.1 Overall survival



### 3.1.2 Recurrence-free survival

There is a trend towards better recurrence free survival in the surveillance group using log-rank test however statistical significance was not reached (p=0.043 used to be not significant, awaiting confirmation on some seemingly wrong entries on raw excel).



## 3.2 Univariate cox regression

Univariate cox regression was conducted to check each included variables influence on final survival outcome

### 3.2.1 Overall survival

### 3.2.2 Recurrence free survival

## 3.3 multivariate cox regression

Next we aimed to compare the OS and RFS between adjuvant chemo and surveillance group using multivariate logistical regression accounting for known clinical prognostic factors. Variables contained groups with very small number of samples (<4) were removed.

## Table printed with {flextable}, not {gt}. Learn why at  
## http://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
## To suppress this message, include `message = FALSE` in the code chunk header.

| Characteristic | N | HR (95% CI)1 | p-value |
| --- | --- | --- | --- |
| Age at diagnosis | 117 | 1.00 (0.95 to 1.05) | 0.92 |
| CRM | 117 |  |  |
| pos |  | — |  |
| neg |  | 0.35 (0.04 to 3.09) | 0.35 |
| R status | 117 |  |  |
| R0 |  | — |  |
| R1 |  | 7.78 (2.13 to 28.3) | **0.002** |
| Distance from anal verge | 117 | 1.06 (0.89 to 1.25) | 0.52 |
| adjuvant\_management | 117 |  |  |
| adjuvant\_chemo |  | — |  |
| surveillence |  | 1.07 (0.32 to 3.54) | 0.92 |
| Time between radiotherapy and surgery | 117 | 1.00 (1.00 to 1.01) | 0.56 |
| Baseline histological grade | 117 |  |  |
| G3 |  | — |  |
| G1 |  |  |  |
| G2 |  | 1.23 (0.35 to 4.36) | 0.75 |
| Cancer staging post surgery | 117 |  |  |
| stage\_3 |  | — |  |
| stage\_0 |  | 1.81 (0.27 to 12.2) | 0.54 |
| stage\_1 |  | 0.33 (0.03 to 3.55) | 0.36 |
| stage\_2 |  | 1.35 (0.40 to 4.61) | 0.63 |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

## Table printed with {flextable}, not {gt}. Learn why at  
## http://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
## To suppress this message, include `message = FALSE` in the code chunk header.

| Characteristic | N | HR (95% CI)1 | p-value |
| --- | --- | --- | --- |
| Age at diagnosis | 117 | 1.01 (0.97 to 1.06) | 0.52 |
| CRM | 117 |  |  |
| pos |  | — |  |
| neg |  | 0.74 (0.15 to 3.70) | 0.72 |
| R status | 117 |  |  |
| R0 |  | — |  |
| R1 |  | 6.63 (1.76 to 24.9) | **0.005** |
| Distance from anal verge | 117 | 1.10 (0.93 to 1.29) | 0.27 |
| adjuvant\_management | 117 |  |  |
| adjuvant\_chemo |  | — |  |
| surveillence |  | 0.22 (0.05 to 0.89) | **0.034** |
| Time between radiotherapy and surgery | 117 | 1.00 (1.00 to 1.01) | 0.57 |
| Baseline histological grade | 117 |  |  |
| G3 |  | — |  |
| G1 |  |  |  |
| G2 |  | 0.68 (0.19 to 2.40) | 0.55 |
| Cancer staging post surgery | 117 |  |  |
| stage\_3 |  | — |  |
| stage\_0 |  | 1.09 (0.11 to 10.8) | 0.94 |
| stage\_1 |  | 1.47 (0.27 to 7.94) | 0.66 |
| stage\_2 |  | 1.56 (0.48 to 5.07) | 0.46 |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |