LDA_IGA-NTX

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§ 1

Load required packages:

```
library(ggplot2)
library(survival)
library(survminer)
library(xtable)
library(data.table)
library(readxl)
library(forcats)
library(lubridate)
library(dplyr)
```

Read data using read_data.R scrip:

```
source("read_data.R")
```

§ 2 EDA

§ 2.1 IGA

§ 3 Kaplan-Meier

```
follow_up <- years(10)
```

§ 3.1 IGA

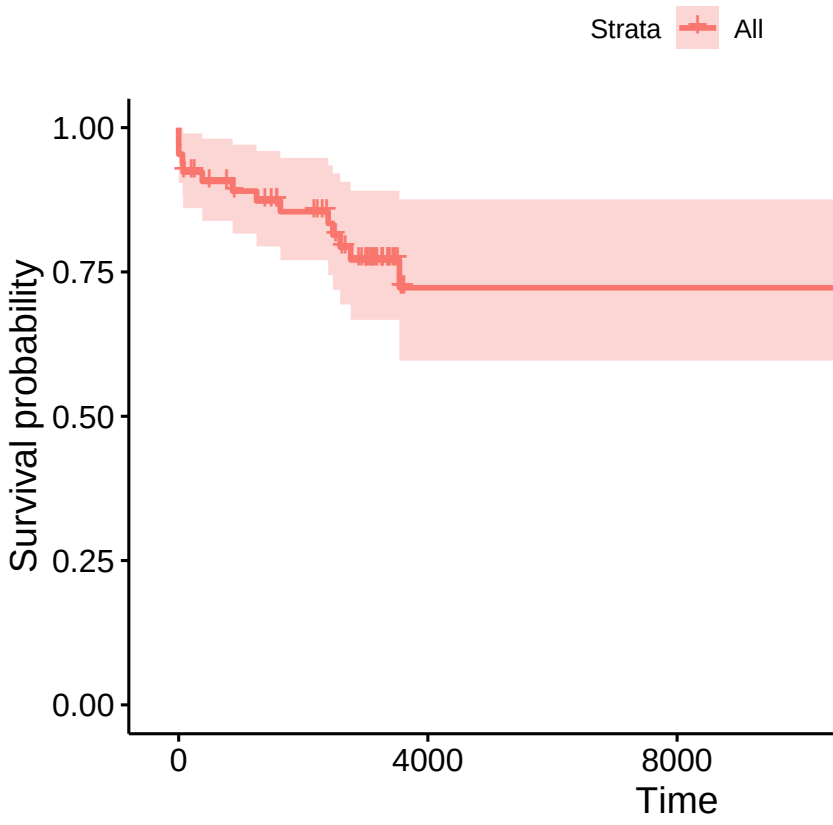
```
#  functions in survival and survminer package need numeric-type input
data_iga2[, num_t_date := as.numeric(`T-date` - `T-date`)]
data_iga2[, num_t_dls := as.numeric(`T-dls` - `T-date`)]
data_iga2[, num_date_biopsy := as.numeric(`date of biopsy` - `T-date`)]
data_iga2[, num_date_birth := as.numeric(`Date of birth` - `T-date`)]  # negative
data_iga2[, num_graft_loss := as.numeric(`graft loss date` - `T-date`)]
data_iga2[, num_date_follow_up := as.numeric(`T-date` + follow_up)]
```

§ 3.1.1

- Event:
  - graft-loss within the follow up period.
- Right censoring:
  - if `graft loss date` after follow up period, censored by end of follow up.
  - if `T-dls` (date last seen) within follow up period, censored by `T-dls`.
- Time period:
  - 10 years after `T-date` (kidney transplantaion).

```
data_iga2 <- data_iga2 %>%
  mutate(censor_date = case_when(
    ## graft-loss within follow up period
    !is.na(`graft loss date`) & `graft loss date` <  `T-date` + follow_up ~ num_graft_loss,
    ## graft-loss after follow up period
    !is.na(`graft loss date`) & `graft loss date` >  `T-date` + follow_up ~ num_date_follow_up,
    ## no graft-loss and last seen within follow up
    is.na(`graft loss date`) & !is.na(`T-dls`) & `T-dls` < `T-date` + follow_up ~ num_t_dls,
    ## no graft-loss and last seen after follow up
    is.na(`graft loss date`) & !is.na(`T-dls`) & `T-dls` > `T-date` + follow_up ~ num_date_follow_up,
    ## no graft loss and no last seen
    is.na(`graft loss date`) & is.na(`T-dls`) ~ num_date_follow_up
                                  )
  )
data_iga2 <- data_iga2 %>%
  mutate(event = case_when(
    ## graft-loss within follow up period
    !is.na(`graft loss date`) & `graft loss date` <  `T-date` + follow_up ~ 1,
    ## else censored
    TRUE ~ 0,
                                  )
  )
```

```
model_iga_1 <- survfit(formula = Surv(time = censor_date,
                                      event = event, type = "right")~ 1,
                       data = data_iga2)
ggsurvplot(model_iga_1)
```



Overall kaplan-Meier curve (no stratification)