

## Cirrhosis data - miniproject

In the period 1962-1969 532 patients with the diagnosis of cirrhosis joined a randomized clinical trial for which the aim was to investigate the effect of treatment with the hormone prednison. The patients were randomly assigned to either prednison or placebo treatments. The survival times of the patients were observed until september 1974 so that observations were right censored for patients who were alive at this date. Data for 488 patients are available from the course web page.

For each patient the following informations are given:

1. Patient number
2. Code for death (1) or censoring (0).
3. Observation time (number of days from start of treatment).
4. Treatment (prednison=0, placebo=1).
5. Sex (female=0, male=1).
6. Ascites (amount of fluid in the abdominal cavity at the treatment start: none=0, little=1, moderate=2).
7. Age at treatment start.
8. Prothrombin (an index for the coagulation ability of the blood. Measured at treatment start and given in % of normal).

Among the 488 patients, 251 were treated with prednison and among these 142 died before september 1974. Among the remaining 237 placebo-treated patients, 150 deaths were observed.

Investigate to begin with the effect of the 5 explanatory variables by using estimates of the survivor function and log rank tests. Perform next a Cox regression analysis in order to investigate the effect of the explanatory variables and possible interactions among these. In connection with this it is of course required to check the model assumption using plots of cumulative hazards, residuals etc. The quantitative variables “age” and “prothrombin” can to begin with be scored as indicator variables. Which guidelines for prednison treatment can be derived from the fitted Cox-model ?

Give an estimate for the survival function for a prednison treated man, who at the start of the treatment was 57, had Ascites=little, and a prothrombin index equal to 85. What is the probability that he will survive to be 65 ?