

AML (Acute Myeloid Leukemia) is a blood cancer (haematological malignancy), and the standard way of treating older AML patients is chemotherapy. However, an alternative is to perform bone marrow or stem cell tx (transplantation). For a tx to be possible, two conditions must be met with: the patient has to be in reasonably good shape ("eligible for tx") and a histologically compatible donor must be available. Now the question arises whether such tx improves the survival probability, and an ongoing study is hoped to answer that question. The highest-ranking type of clinical trial is the randomized trial, but for several reasons, ethical and psychological, such a study is not an option here. Instead one starts, for each patient, a search for a compatible donor; that search is of course interrupted if the patient dies or else turns ineligible. If and when a donor is found, a tx is performed. At the close of the study there will thus be information on a number of patients: start date of donor search; dates of tx, ineligibility and death (if applicable); date of end of study (presumably the same for all patients). The object of the statistical analysis is to compare the actual survival among the patients with the hypothetical counter-factual survival that would have occurred if no tx had been performed. Estimation of the actual survival is a straight-forward KM (Kaplan-Meier) problem. The procedure that perhaps first comes to mind for estimation of the counter-factual survival is to censor every patient with tx at the date of tx; we shall explain why such censoring would be dependent and hence can be expected to give a biased estimate. We have instead studied three alternative methods: one using the concept Inverse Probability Weighting (originally constructed by Robins), and two which, at least we believe so, are our own, viz. one cut-and-paste method and one piecewise KM method. To our surprise the first two of these three methods turned out to give identical results.