A relative survival model to compare the risk of mortality in kidney transplanted patients versus patients awaiting transplantation.


EA 4275 - SPHERE, Nantes University, 1 rue Gaston Veil, 44035 Nantes, France
Inserm U1064, Transplantation, Urology and Nephrology Institute (ITUN), 30 bd Jean Monnet, 44093 Nantes, France
marine.lorent@univ-nantes.fr

INTRODUCTION

In 1999, Wolfe et al. (New England Journal of Medicine) have compared the mortality in kidney transplanted patients versus patients awaiting a transplantation for the first time using an appropriate methodology (Survival Cox model). They showed that:

▶ in the short-term, the risk of death was higher in transplanted patients
▶ an inversion of the risk ratio at 106 post transplantation days
▶ in the long-term, the risk of death was higher in dialysis patients

▶ Main limitation: the method did not allow to consider specific variables of the transplantation or the donor.

METHODS - Estimation of the risk of death related to the transplantation (2)

▶ Development of a multiplicative relative survival model.

(Andersen et al., Biometrics, 1985)

Assumption: To correct the observed survival in transplanted patients by the expected survival estimated from the reference population (dialysis patients).

The Expected risk of death was estimated from competitive hazards model results.

RESULTS

▶ 7 variables had a different effect in each group (Increase of the risk ratio associated with the death in transplanted patients compared to dialysis patients):

▶ recipient age
▶ body mass index
▶ dialysis duration before waiting list registration
▶ blood group
▶ cardiac antecedents
▶ anti HLA class I and class II immunization

▶ Adjustment on 3 risk factors specific of the transplanted population:

▶ donor age
▶ cytomegalovirus donor serology
▶ cold ischemia time

CONCLUSION

▶ Model which allows to identify patients profiles with a precocious/delayed transplantation benefit compared to dialysis.

▶ Useful information for graft decision/allocation.

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