

Background and Aims:

The clinician-patient decision of whether to accept or decline an offered deceased donor kidney is one of the most complex decisions in transplantation. Though many attempts have been made to risk stratify based on donor and recipient characteristics as well as other methods, reliance on clinical intuition remains high. We used a novel statistical modelling technique to better understand potential outcomes for patients from the point of listing for deceased donor kidney transplantation and following acceptance or decline of an organ offer in the UK.

Method:

We obtained UKTR data held by NHS Blood and Transplant (NHSBT) on adult patients listed for kidney transplantation in the UK, deceased donor kidney offers and post-transplant outcomes. Multivariable models to demonstrate 5-year transplant survival (a composite of graft and patient survival) for patients from the point of offering and post-transplant survival were developed using a Cox proportional hazard techniques. Waiting time to a “better” offer was modelled using a micro-simulation approach for patients and donors with different profiles, incorporating the points system from the current UK kidney offering scheme. Rates of patients arriving on the waiting list, leaving the list and being transplanted were obtained to facilitate this, as well as characteristics of waitlisted patients and organ donors. Simulations were then run to ascertain potential outcomes from the point of offer for an index patient for scenarios characterised by offers from donors with differing profiles.

Results:

Figure one demonstrates the outcomes of an index patient if they accept an organ offer from a donor with the demonstrated characteristics compared with potential outcomes if the next offer is accepted. Figure two uses the same techniques but demonstrates outcomes if a kidney from a donor with ‘worse’ characteristics is offered.

Conclusion:

This study demonstrates a novel method to help visualise potential outcomes for patients listed for deceased donor kidney transplantation. With further input from patient and clinician perspectives, this work has potential to be beneficial in facilitating discussions between patients and clinicians regarding decision making at the time of organ offering and may ultimately improve organ utilisation.

Figure:

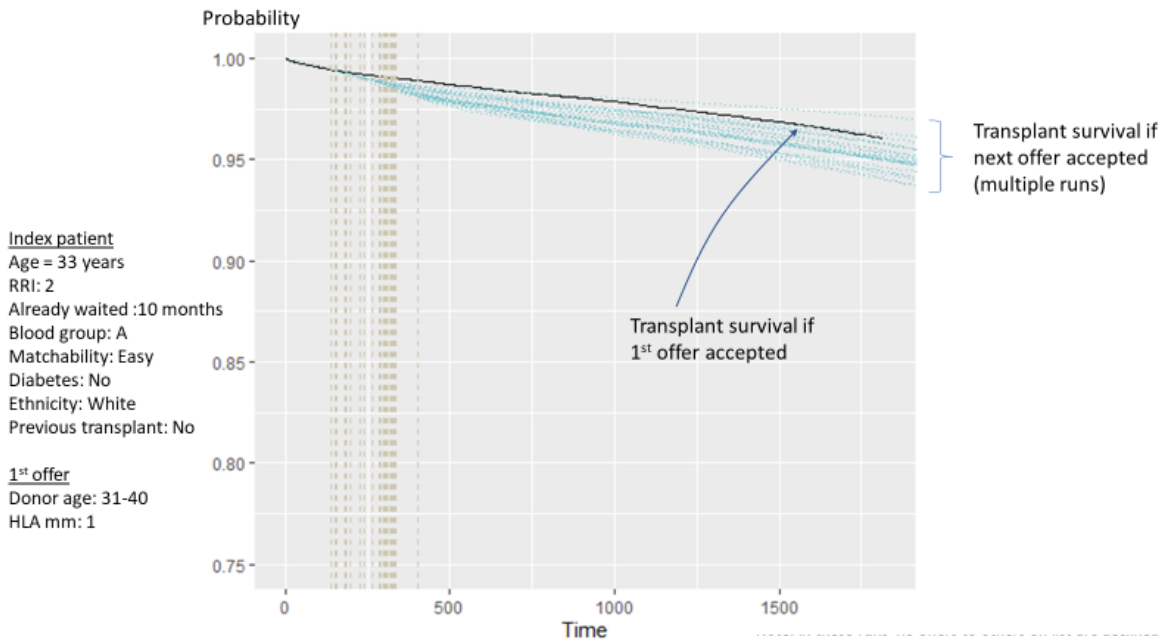


Figure 1: Output from simulation demonstrating post-transplant outcomes for index patient with demonstrated donor characteristics.

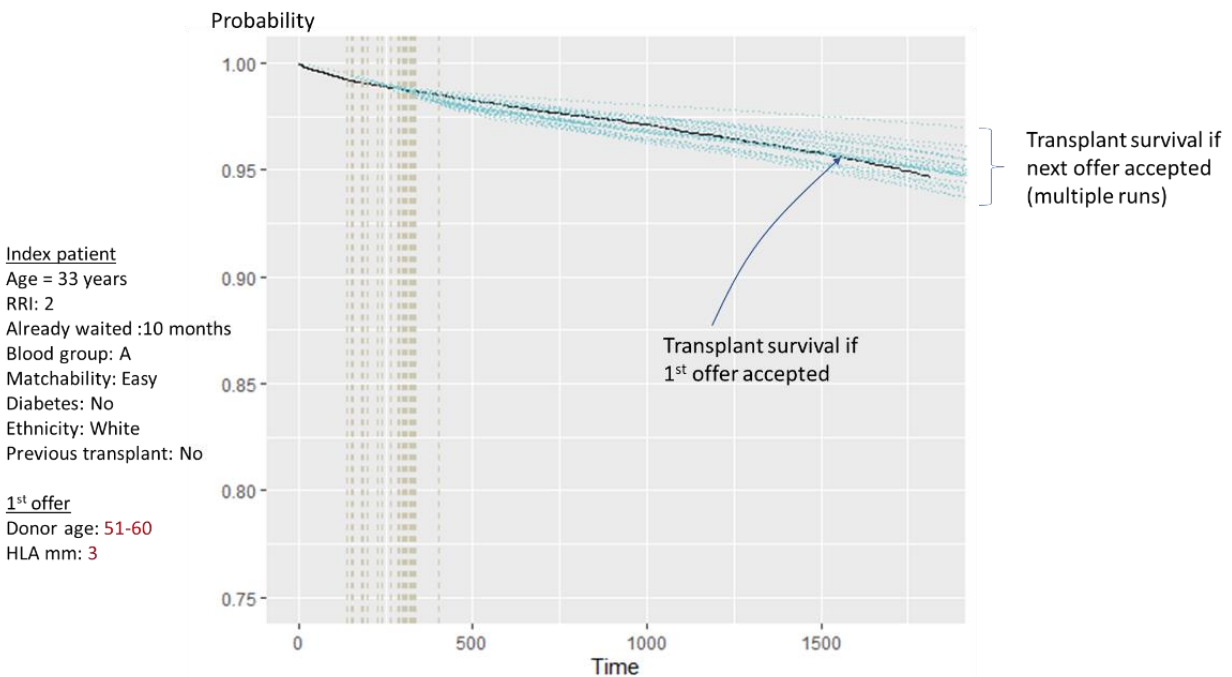


Figure 2: Output from simulation demonstrating post-transplant outcomes for index patient with different donor characteristics.