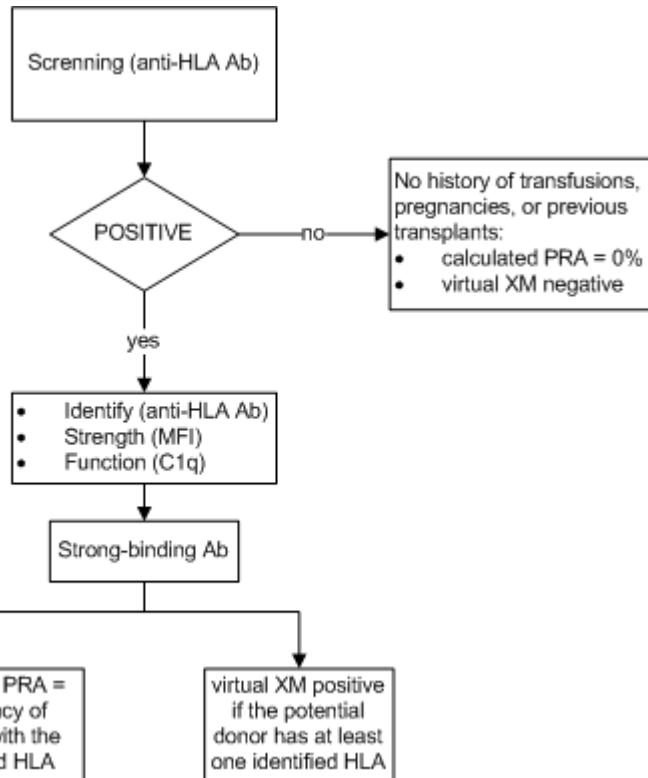


Background

The demand for kidneys for transplantation grows daily due to the successful treatment of many patients with end stage renal disease. The success of kidney transplants depends largely on genetic and immunological compatibility between the organ and its recipient. An important barrier to kidney transplantation is the sensitization of transplant candidates to human leukocyte antigen (HLA) [1].



Using cPRA and vXM simultaneously

Discussion

The Luminex Single-Antigen Beads (LSA) assay allows an accurate detection and characterization of pre-existing HLA antibodies (Ab) in kidney transplant candidates. HLA specificities are determined against which the patient has circulating alloantibodies that are expected to harm a transplanted organ. With this characterization, it is possible to reliably predict crossmatch results for a given donor, the so called virtual crossmatch (vXM). The vXM is commonly used by many transplantation centers in the selection of potential candidates for kidney transplant from a deceased donor and transplantation of candidates with preformed anti-HLA donor specific Ab is usually avoided [2].

Before the introduction of the LSA technique those antibodies were determined using the complement-dependent cytotoxicity (CDC) methodology which have a lot lower sensitivity to detect clinically relevant anti-HLA antibodies. Panel reactive antibody (PRA) determined by CDC gives us a perceptual value used to estimate the percentage of future donors to which a candidate will have a positive CDC crossmatch. As an alternative to this PRA-CDC some transplantation centers use the so called calculated PRA (cPRA) representing the percentage of actual organ donors that express 1 or more of unacceptable HLA antigens [3]. CPRA more accurately reflects the probability of a candidate to receive a transplant and can assist in the selection of the best transplant approach. Phenotype frequencies used for the cPRA calculation must be in accordance (as much as possible) to those from future donors for kidney transplantation, in order to be useful for sensitization measurements and organ-allocation algorithms. The cPRA, rather than PRA by CDC (an inaccurate measure), should be used simultaneously with vXM to seek and increase accessibility and promote equity to all patients awaiting kidney transplantation.

References

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