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An IgG subtype specific flow cross-match assay can increase the number of successful transplants in sensitized renal recipients

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A positive flow cytometric crossmatch (FXCM) is generally considered as a contraindication to a successful renal transplant. The standard FXCM does not distinguish between the various subtypes of the immunoglobulin molecule (IgG1, IgG2, IgG3, and IgG4). Of these, only IgG1 and IgG3 subtypes are capable of maximal complement activation with grave consequences. IgG2 and IgG4 are relatively benign. Using a new IgG subtype analysis FXCM, we can specifically detect and quantify the four IgG subtypes responsible for a positive crossmatch. Pre-transplant sera from seven recipients and blood samples from their respective donors were analyzed. PBMCs isolated from the donor blood samples were incubated with the patient and control sera for 30 minutes at 4°C. The cells were then incubated in the lyophilized custom cocktail of antibodies that specifically recognize the various IgG subtypes bound to the cells, followed by FCXM analysis. C1q testing on all sera was carried out. All cases showed the presence of non-complement activating antibodies as responsible for the positive FCXM (except patient CF). CF showed the presence of IgG3 antibodies with a negative C1q; probably the result of denatured antibodies. There were no episodes of clinical rejection or requirement for dialysis in the first week for any of the recipients. All recipients are alive and doing well more than 12 months following transplant. This assay has shown itself to be highly accurate in detecting the IgG subtype/s causing a positive FCXM, thus potentially resulting in successful transplants even in the presence of a positive FCXM.

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