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KRISADA KOKTATHONG: FLOW CYTOMETRIC CROSSMATCH FOR KIDNEY TRANSPLANTATION. THESIS ADVISORS : DASNAYANEE CHANDANAYINGYONG, M.D., SASITORN BEJRACHANDRA, M.D., KOVIT PATTANAPANYASAT, Ph.D., SASIJIT VEJBAESYA, M.D., Dr.Med. 80 P. ISBN 974-662-852-6

Kidney transplantation is the preferable treatment for most patients with end-stage renal failure. HLA matching and the more sensitive crossmatching are important factors for higher graft survival rates. The purpose of this study was to compare crossmatching between flow cytometry crossmatch (FCXM), the standard National Institutes of Heath (NIH) and the antihuman globulin microlymphocytotoxicity (AHG). Study was conducted from Jan 1997 to Dec 1998. Serum samples from 49 patients with panel reactive antibodies of greater than 15% and 17 patient-living related donor pairs were collected at the Department of Transfusion, Faculty of Medicine Siriraj hospital. Crossmatching was performed with three methods (FCXM,NIH and AHG). It was found that when a T-cell crossmatch was negative by FCXM, it was always negative by both NIH and AHG crossmatch. When the T-cell crossmatch was positive by NIH and AHG methods, they were also positive by FCXM. There were a number of cases with T-cell positive by FCXM but negative by NIH and AHG crossmatching. Additionally, when a T-cell crossmatch was positive by NIH and AHG most of them were positive for both T- and B-cell by FCXM. The result also showed that FCXM comparing with NIH and AHG crossmatch were statistical significant ($P<0.0001$). FCXM was about 4-16 and 8-32 times more sensitive than AHG and NIH, respectively. In summary, FCXM should be used in combination with cytotoxic assay. This will aid better recipient-donor pair selection. It will take less time to perform and is less affected by poor cell viability.