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ABO-incompatible kidney transplantations without splenectomy

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Objectives: ABO-incompatible kidney transplantations have previously only been performed after several pre-operative sessions of plasmapheresis followed by splenectomy, and with the conventional triple-drug immunosuppressive protocol being reinforced with anti-lymphocyte globulin and B-cell-specific drugs. We have designed a protocol without splenectomy, based on antigen-specific immunoadsorption, rituximab and a conventional triple-drug immunosuppressive protocol.

Methods: The protocol called for a 1-month pre-transplantation conditioning period, starting with one dosage of rituximab and followed by full-dose tacrolimus, mycophenolate mofetil and prednisolone. Antigen-specific immunoadsorption was performed on pre-transplantation days -6, -5, -2 and -1. After the last session, 0.5 g/kg of intravenous immunoglobulin (IVIG) was administered. Postoperatively, three more apheresis sessions were given every third day.

Results: Twenty-one patients have received transplants with this protocol. The ABO-antibodies (Abs) were readily removed by the antigen-specific immunoadsorption and were kept at a low level post-transplantation by further adsorptions. There were no side effects, and all but one patient have normal renal transplant function.

Conclusions: We conclude that after one infusion each of rituximab and IVIG, and antigen-specific immunoadsorption, blood-group incompatible renal transplantations can be performed with standard immunosuppression and without splenectomy, and with excellent short- and long-term results.