

ABO 부적합 신장이식에서 낮은 동종응집소 역가에도 불구하고 발생한 항체매개이식거부반응

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Antibody Mediated Rejection after ABO-incompatible Kidney Transplantation Despite Low Levels of Anti-blood Group Antibody Titers

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Introduction: ABO-incompatible (ABO-I) Kidney transplantation (KT) has been suggested as a solution to donor shortage. Despite improvements in desensitization protocols and immunosuppressive therapy, acute antibody mediated rejection (AMR) still occurs in up to 30% of ABO-I KT cases. However, risk factors and management of AMR in ABO-I KT have not yet been identified. We report a case of a patient who developed AMR after ABO-I KT despite low anti-blood group antibody titers, suggesting that other risk factors may play important roles in AMR in ABO-I KT.

Case: A 40-year-old male patient with ESRD due to IgA nephropathy received ABO-I KT from his spouse. The blood type of the patient was A1, Rh+ and that of his spouse was AB, Rh+. Human leukocyte antigen crossmatch results were all negative. Class I panel-reactive antibody (PRA) and class II PRA levels were 0% and 7%, respectively. Isoagglutinin titer before plasmapheresis was 1:8. Rituximab, tacrolimus, mycophenolate mofetil and oral prednisolone were administered and plasmapheresis was performed five times before transplantation. Basiliximab was given on post-transplantation day 1 and 4. After transplantation, combination of tacrolimus, mycophenolate mofetil, and prednisolone was administered. Isoagglutinin titer was 1:2 just before the surgery and was maintained at 1:1 after transplantation. On the 14th day after transplantation, serum creatinine (Cr) level was 1.08 mg/dL, but was increased to 1.47 mg/dL on day 16. Fractional excretion of sodium (FeNa) was 3.9%, whole blood tacrolimus trough level was 9.2 ng/mL, and isoagglutinin titer was 1:1. Acute rejection was suspected and steroid pulse therapy was administered. Improvement in serum Cr level (1.35 mg/dL) was observed after steroid pulse therapy, but was increased again to 2.29 mg/dL. Cytomegalovirus antigenemia was negative. Transplanted kidney biopsy was performed and positive C4d staining of tissue biopsy confirmed antibody-mediated acute rejection. Plasmapheresis and IVIG injection were performed and rituximab was administered. After antirejection treatment, serum Cr level maintained about 1.8 mg/dL.

Discussion: Although anti-blood group antibody titers were maintained at low levels during transplantation, recurrent AMR occurred in this patient. Therefore we propose that there are more important factors than anti-ABO antibody titers involved in AMR in ABO I KT, and, furthermore, that ABO blood type is not a critical factor in terms of the success of KT.

Key Words: ABO 부적합 신장이식, 동종응집소, 항체매개이식거부반응
Antibody mediated rejection, ABO-incompatible KT