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Desensitization Protocol for Highly Sensitized Patients on the Waiting List for Deceased Donor Kidney Transplant

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Background: Along with decreased organ availability, human leukocyte antigen (HLA) sensitization is the most important barrier to deceased donor kidney allocation. Here, we present our desensitization protocols for wait-listed patients for deceased donor kidney transplantation (DDKT) and their clinical outcomes.

Method: Highly sensitized adult Korean patients with peak pannel reactive antibody (PRA) level above 50% that had waited for DDKT for longer than 4 years from 2010 to 2011 in Seoul National University Hospital were enrolled. High dose intravenous immunoglobulin (IVIg, 2 g/kg) and rituximab (375 mg/m^2) were administered at day 0. Another dose of IVIg (2 g/kg) and a cycle of bortezomib (1.3 mg/m^2) were administered at day 30.

Results: A total of 8 patients were enrolled. Mean age was 53.0±7.8 years, and there were 6 male patients. Initial PRA level was 98.1±2.2% (mean fluorescent intensity; MFI 16,446.0±3,578.7). Six cases were retransplants, and 2 patients had a history of multiple blood transfusion. A mean waiting time was 7.8±4.2 years. The mean follow-up PRAs were 88.8±19.4% (MFI 14,807.1±7,620.0), 83.5±23.8% (MFI 13,364.4±8,098.6), and 71.0±22.7% (MFI 13,194.0±5,989.2) at 3, 6, and 12 months after transplantation, respectively. Four among 8 patients (50%) had succeeded in getting kidney transplantation at 2.5±1.4 months after desensitization, with mean reduction of PRA by 17% (MFI 41%) just before operation. Donor-specific antibody (DSA) was converted to negative or titer of DSA decreased, when DSA titers compared between time just before desensitization and time of transplantation. Patient and graft survival were 100%, with 3 patients having at least 12 months of follow up. Their mean serum creatinine at 12 months after transplantation was 1.23±0.31 mg/dl. Acute rejection or infectious complication did not occur yet. The other 4 patients are still on the waiting list. Their mean PRAs were 97.3±2.2% (MFI 17,270.0±4,042.3) before desensitization and 90.3±10.8% (MFI 15,299.0±6,249.5) 1 year after desensitization.

Conclusion: Desensitization of the wait-listed patients for DDKT using high dose IVIG with rituximab/bortezomib could be a promising strategy for the highly sensitized, long-waiting patients.

Key Words: 탈감작, 뇌사 신장이식 대기자, 신장이식
Desensitization, Deceased Donor, Kidney transplantation