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신장이식 환자에서 antibody monitoring system과 single-antigen Luminex assay의 비교

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Comparison of Antibody Monitoring System with Single-Antigen Luminex Assay in Renal Transplant Recipients

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Background: The antibody monitoring system (AMS) is ELISA crossmatch assay to detect donor-specific anti-HLA IgG antibodies (DSA). This study was performed to compare the AMS with DSA detected by single-antigen Luminex assay in renal transplant recipients.

Methods: One hundred and one sera were screened from 71 renal transplant candidates and recipients for the presence of DSA. When anti-HLA Ab was detected by single-antigen Luminex assay and the matched donor had the corresponding HLA antigen, it was considered as Luminex-DSA. The results of AMS were compared with Luminex-DSA.

Results: Twenty-nine (28.7%) sera were positive for Luminex-DSA, and the results of AMS assay were compatible with Luminex-DSA in 79 (78.2%) sera (κ=0.47, p<0.001). The sensitivity of the AMS assay for detection of Luminex-DSA was 37.9%; the specificity was 97.2%; the positive predictive value was 84.6%, and the negative predictive value was 79.5%. Compared to complement dependent cytotoxic crossmatch and flowcytometric crossmatch test, the results of AMS assay were compatible in 73 (91.3%) and 72 (90.0%) sera, respectively, and it was significantly higher than those of Luminex-DSA (p=0.008 and p=0.001, respectively). The estimated glomerular filtration rate (eGFR) at 12 months after transplantation was significantly lower in positive AMS patients than in negative AMS patients (46.8±4.1 vs. 60.7±25.4, p=0.007), but Luminex-DSA was not predictive to lower eGFR.

Conclusion: AMS assay is useful as a supportive solid-phase assay to predict actual crossmatch and allograft function at 12 months after transplantation.

Key Words: 항체추적검사, Luminex검사, 신장이식
Antibody monitoring system, Luminex, Renal transplantation