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ABO Incompatibility Is A Risk Factor Of CMV Viremia In Living Donor Liver Transplantation

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Background : Cytomegalovirus (CMV) infection is the most common viral infection in liver transplant recipients, affecting post-transplant patients and graft survival. In Asia, where living donor liver transplantation (LDLT) is common, it is controversial whether ABO incompatibility is associated with CMV viremia. This study aimed to determine whether CMV viremia incidence differs according to ABO compatibility in LDLT.

Methods : We retrospectively analyzed data of 754 patients who underwent LDLT between January, 2012 and December, 2021 in Severance hospital, Korea. Age <18 (n=69), death or retransplantation before 30 days after LT (n=22), combined organ transplantation (n=6), dual donor liver transplantation(n=1), and incomplete data (n=26) were excluded. We compared CMV viremia within 1-year after LT between ABO-incompatible(ABOi) group (n=153) and ABO-compatible(ABOc) group (n=477). CMV viremia was defined as a value of 1000 IU/mL or more in quantitative PCR and was screened with quantitative PCR at 1~4 week interval within the first 3 months, at 3 month interval after then until 1 year.

Results : Median value of time from LT to CMV viremia was 27 days. There were no significant difference in baseline characteristics between ABOi group and ABOc group. The cumulative incidence of CMV viremia was significantly higher in the ABOi group (Log-rank $P < 0.001$). The 1-month/3-month/1-year incidence of CMV viremia was 18.3%/26.2%/28.2% in the ABOi group and 9.0%/13.6%/15.6% in the ABOc group. In multivariate cox proportional hazard model for CMV viremia, ABO incompatibility was significantly associated with CMV viremia (HR 1.956, 95%CI 1.294, 2.956, $P=0.001$). Also, female recipient, higher MELD, pre-transplant ward hospitalization, history of biopsy-proven rejection, pre-transplant hyperglycemia and post-transplant dialysis were independent risk factors of CMV viremia.

Conclusions : The cumulative incidence of CMV viremia in ABO-incompatible LDLT was significantly higher than in ABO-compatible LDLT and ABO incompatibility was independent risk factor of CMV viremia.

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