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Session Title : -

Study on the influence of donor-specific anti-HLA antibody (DSA) to the viral antibody titer associated with vaccination after pediatric liver

Seiichi Shimizu
National Center for Child Health and Development, Japan

Seiichi Shimizu[1], Seisuke Sakamot[1], Akinari Fukuda[1], Hajime Uchida[1], Yusuke Yanagi[1], Ryuji Komine[1], Masatoshi Nakao[1], Tasuku Kodama[1], Masaki Yamada[2,3], Takanori Funaki[3], Kensuke Shoji[3], Chikara Ogimi[3], Takako Yoshioka[4], Mureo Kasahara[1]

1- Organ Transplantation Center, National Center for Child Health and Development, Tokyo, Japan
2- Department of Advanced Medicine for Viral Infections, National Center for Child Health and Development, Tokyo, Japan.
3- Division of Infectious Diseases, Department of Medical Subspecialties, National Center for Child Health and Development, Tokyo, Japan
4- Department of Pathology, National Center for Child Health and Development, Tokyo, Japan.

Background:
The suppression of anti-human leukocyte antigen donor-specific alloantibodies (DSA) development and the establishment of humoral immunity by vaccines are important for the protection of transplanted liver damage and the prevention of infectious diseases, but they are contradictory events in the concept of antibody production. This study aimed to analyze the influence of DSA on pathological findings of the transplanted liver and to investigate the relationship between DSA and antibody titers against vaccination response after pediatric liver transplantation (LT).

Methods:
We conducted a cross-sectional study for 462 pediatric recipients who were followed up more than one year after primary LDLT and who had at least 1 screening for anti-HLA antibodies. A liver biopsy was performed in the DSA-positive cases with mean fluorescence intensity (MFI) >1000. Live-attenuated vaccines were administered to LT recipients fulfilling the clinical criteria.

Results:

The median time from LDLT to DSA screening was 3.4 years (1.0-13.0 years). Of the 462 patients, 119 (25.3%) had DSA (class I only: 13, class II only: 92, both class I and II: 14). Liver biopsy specimens could be scored for the 80 DSA-positive recipients. Early chronic rejection was found in 29, normal or mild fibrosis in 28, chronic antibody-mediated rejection (cAMR) in 19, and other in 4 patients. The highest MFI in cAMR patients was higher than that in patients with other pathological findings. The cut-off value of the highest MFI to detect cAMR positivity was 6890. Cases treated with tacrolimus and mycophenolate mofetil (MMF) against cAMR showed a greater reduction in MFI of DSA than cases treated with tacrolimus alone. Regarding the relationship between the development of DSA and vaccine response, in the cohort with seropositivity for the measles vaccine, the antibody level tended to be higher in DSA positive group than in the negative group ($p=0.14$). Cases treated with tacrolimus and MMF against cAMR showed a less antibody response after vaccination than cases treated with tacrolimus alone.

Conclusion:

Tacrolimus and MMF-based immunosuppression could be effective for cAMR patients after pediatric liver transplantation, though the development of DSA might correlate with vaccine response after pediatric LT.