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## **Antibody titer after COVID-19 vaccination in liver transplant recipients**

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**Introduction:** COVID-19 has raised a pandemic. A mRNA-based vaccine is released for prophylaxis, and its high efficacy has been reported. However, there is a paucity of data in immunosuppressed individuals. We estimated the serum antibody (Ab) titer after vaccination in liver transplant (LT) recipients.

**Methods:** The LT recipients who took vaccination were included in this study. Twice vaccination was performed and SARS-CoV-2 S-IgG Ab titer was measured 1, 3, 6 months after the 2<sup>nd</sup> dose of vaccination.

**Results:** We measured Ab titer in 107 LT recipients which entered for this study by July 11, 2022. A median age at LT was 34 (interquartile range 2, 53) years old, an observation period was 15.0±7.9 years, and a period between LT and the 1st dose was 15.2±11.2 years. Post-transplant immunosuppression regimen included calcineurin inhibitor (n=104, 89.7%), mycophenolate mofetil (MMF) (n=33, 30.8%), steroid (n=21, 19.6%) and mTOR inhibitor (n=6, 5.6%) at the time of the 1<sup>st</sup> dose. Recipients took single reagent (n=65), 2 reagents (n=28), 3 reagents (n=13) and 4 reagents (n=1). An Ab titer 3 and 6 months after was significantly reduced than that 1 month after (26.0 [5.4, 59.5], 14.7 [6.5,31.4] vs 59.7 [18.3, 164.0] AU/mL, respectively, p<0.0001). The Ab titers 6 months after in LT recipients were comparable to those in healthy volunteer (n=20, 12.2 [7.7, 20.0], p=0.5120). Multi-variate regression analysis identified age at LT ≤37 years old and a period between LT and the 1st dose >12.3 years as independent predictors for positive SARS-CoV-2 S-IgG Ab titer after 2<sup>nd</sup> dose.

**Conclusion:** Acquired acquisition rate after two doses of SARS-CoV-2 Vac was relatively good (89%) in LT recipients. However, An Ab titer rapidly decreased after vaccination. LT recipients could also obtain acquired acquisition by vaccination as well as healthy people.