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COVID-19 vaccination in solid organ transplant candidates and solid organ transplant recipients – an update (Berne, 26.07.2021)

In Switzerland, two mRNA based SARS-CoV-2 vaccines are currently approved (Moderna, Pfizer/BioNTech). These vaccines are usually administered in a two-dose regimen. For non-immunocompromised individuals, current data for mRNA vaccines show efficacy of >90%. The most common adverse reactions of these vaccines are injection site pain (~90%), fatigue (~70%) and headache (~60%). Serious adverse events are rare (~1%). Solid organ transplant recipients however, show reduced immunogenicity after two vaccine doses compared to the general population (1-5). Limited evidence suggest that an additional third dose might be beneficial for solid organ transplant recipients who did not produce antibodies after two vaccine doses (6, 7). In view of the very limited evidence regarding the potential benefit of a third vaccine dose and optimal vaccine strategies among solid organ transplant recipients, we encourage to continue research on vaccination of this particular population.

We encourage immunization of patients awaiting solid organ transplantation and of solid organ transplant recipients. In the post transplantation setting, the ideal timing of vaccination is uncertain. We recommend delaying vaccination at least one month from transplant surgery and 3 months from use of T-cell or B-cell depleting agents; primarily for reasons of expected reduced efficacy and less for safety concerns. In the pre transplant setting, we recommend vaccination for all patients on the waiting list, including patients who are already on immunosuppressive treatment for other reasons). In case of urgent listing of severely ill patients (e.g. acute liver failure) the decision for or against vaccination should be taken on an individual case basis.

To identify solid organ transplant recipients who might benefit from a third vaccine dose, we advise to follow the recommendations published by the Federal Office of Public Health and the «Eidgenössischen Kommission für Impffragen, EKIF»:

- Even though there is no established serological cut-off, which indicates protection after SARS-CoV-2 vaccination, we recommend measuring SARS-CoV-2 anti-spike IgG serum concentration four weeks after the second vaccine dose.
- We recommend offering a third vaccine dose to solid organ transplant recipient with negative or equivocal anti-spike IgG antibody concentrations.
- The third vaccine dose should ideally be administered two months after the second dose (and not earlier than four weeks after the second dose).
- For solid organ transplant recipients who are on B-cell depleting agents, we recommend to administer the third vaccine dose ideally 4-5 months after the last dose of the B-cell depleting agent and at least 4 weeks before the next dose.
- In order to generate data on the serologic effect of a third vaccine dose, we recommend to measure SARS-CoV-2 anti-spike IgG antibody concentrations 4 weeks after the third vaccine dose.

We still recommend to solid organ transplant recipients to continue protective measures after being vaccinated either with two or with three doses of a mRNA based SARS-CoV-2 vaccine. We encourage the early use of monoclonal antibody therapy in patients with low antibody titers in case of an infection irrespective of the number of previous vaccinations (8). Details about monoclonal antibody therapies

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Recommendation approved by Dr Cédric Hirzel, President Swisstransplant Working Group of Infectious Diseases, Prof Christoph Berger, President Federal Commission on Vaccination, and PD Franz Immer, Medical Director and CEO Swisstransplant

References:

1. Sattler A, Schrezenmeier E, Weber UA, Potekhin A, Bachmann F, Straub-Hohenbleicher H, Budde K, Storz E, Pross V, Bergmann Y, Thole LM, Tizian C, Holsken O, Diefenbach A, Schrezenmeier H, Jahrsdorfer B, Zemojtel T, Jechow K, Conrad C, Lukassen S, Stauch D, Lachmann N, Choi M, Halleck F, Kotsch K. Impaired humoral and cellular immunity after SARS-CoV-2 BNT162b2 (tozinameran) prime-boost vaccination in kidney transplant recipients. The Journal of clinical investigation 2021; 131.
2. Rabinowich L, Grupper A, Baruch R, Ben-Yehoyada M, Halperin T, Turner D, Katchman E, Levi S, Houri I, Lubezky N, Shibolet O, Katchman H. Low immunogenicity to SARS-CoV-2 vaccination among liver transplant recipients. Journal of hepatology 2021; 75: 435-438.
3. Boyarsky BJ, Werbel WA, Avery RK, Tobian AAR, Massie AB, Segev DL, Garonzik-Wang JM. Antibody Response to 2-Dose SARS-CoV-2 mRNA Vaccine Series in Solid Organ Transplant Recipients. JAMA : the journal of the American Medical Association 2021; 325: 2204-2206.
4. Rincon-Arevalo H, Choi M, Stefanski AL, Halleck F, Weber U, Szelinski F, Jahrsdorfer B, Schrezenmeier H, Ludwig C, Sattler A, Kotsch K, Potekhin A, Chen Y, Burmester GR, Eckardt KU, Guerra GM, Durek P, Heinrich F, Ferreira-Gomes M, Radbruch A, Budde K, Lino AC, Mashreghi MF, Schrezenmeier E, Dorner T. Impaired humoral immunity to SARS-CoV-2 BNT162b2 vaccine in kidney transplant recipients and dialysis patients. Science immunology 2021; 6.
5. Grupper A, Rabinowich L, Schwartz D, Schwartz IF, Ben-Yehoyada M, Shashar M, Katchman E, Halperin T, Turner D, Goykhman Y, Shibolet O, Levy S, Houri I, Baruch R, Katchman H. Reduced humoral response to mRNA SARS-CoV-2 BNT162b2 vaccine in kidney transplant recipients without prior exposure to the virus. American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons 2021.
6. Werbel WA, Boyarsky BJ, Ou MT, Massie AB, Tobian AAR, Garonzik-Wang JM, Segev DL. Safety and Immunogenicity of a Third Dose of SARS-CoV-2 Vaccine in Solid Organ Transplant Recipients: A Case Series. Annals of internal medicine 2021.
7. Kamar N, Abravanel F, Marion O, Couat C, Izopet J, Del Bello A. Three Doses of an mRNA Covid-19 Vaccine in Solid-Organ Transplant Recipients. The New England journal of medicine 2021.
8. Weinreich DM, Sivapalasingam S, Norton T, Ali S, Gao H, Bhore R, Musser BJ, Soo Y, Rofail D, Im J, Perry C, Pan C, Hosain R, Mahmood A, Davis JD, Turner KC, Hooper AT, Hamilton JD, Baum A, Kyratsous CA, Kim Y, Cook A, Kampman W, Kohli A, Sachdeva Y, Graber X, Kowal B, DiCioccio T, Stahl N, Lipsich L, Braunstein N, Herman G, Yancopoulos GD, Trial I. REGN-COV2, a Neutralizing Antibody Cocktail, in Outpatients with Covid-19. The New England journal of medicine 2021; 384: 238-251.

https://www.bag.admin.ch/dam/bag/de/dokumente/mt/k-und-i/aktuelle-ausbrueche-pandemien/2019-nCoV/impfempfehlung-covid-19.pdf.download.pdf/Impfempfehlung%20f%C3%BCr%20mRNA-Impfstoffe%20gegen%20Covid-19.pdf