



Efficacy of three COVID-19 vaccine doses in lung transplant recipients: a multicentre cohort study

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Three mRNA COVID-19 vaccine doses rarely induced a serological response in lung transplant patients. COVID-19 was rare, suggesting cellular immunity and/or strong adherence to shielding measures. Other protective methods should be sought. <https://bit.ly/3pr9Wox>

Cite this article as: Dauriat G, Beaumont L, Luong Nguyen LB, *et al.* Efficacy of three COVID-19 vaccine doses in lung transplant recipients: a multicentre cohort study. *Eur Respir J* 2023; 61: 2200502 [DOI: 10.1183/13993003.00502-2022].

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This article has an editorial commentary: <https://doi.org/10.1183/13993003.01723-2022>

Received: 10 March 2022
Accepted: 11 Aug 2022

Abstract

Question addressed by the study Do three coronavirus disease 2019 (COVID-19) vaccine doses induce a serological response in lung transplant recipients?

Methods We retrospectively included 1071 adults (551 (52%) males) at nine transplant centres in France. Each had received three COVID-19 vaccine doses in 2021, after lung transplantation. An anti-spike protein IgG response, defined as a titre >264 BAU·mL⁻¹ after the third dose (median (interquartile range (IQR)) 3.0 (1.7–4.1) months), was the primary outcome and adverse events were the secondary outcomes. Median (IQR) age at the first vaccine dose was 54 (40–63) years and median (IQR) time from transplantation to the first dose was 64 (30–110) months.

Results Median (IQR) follow-up after the first dose was 8.3 (6.7–9.3) months. A vaccine response developed in 173 (16%) patients. Factors independently associated with a response were younger age at vaccination, longer time from transplantation to vaccination and absence of corticosteroid or mycophenolate therapy. After vaccination, 51 (5%) patients (47 non-responders (47/898 (5%)) and four (4/173 (2%)) responders) experienced COVID-19, at a median (IQR) of 6.6 (5.1–7.3) months after the third dose. No responders had severe COVID-19 compared with 15 non-responders, including six who died of the disease.

Conclusions Few lung transplant recipients achieved a serological response to three COVID-19 vaccine doses, indicating a need for other protective measures. Older age and use of mycophenolate or corticosteroids were associated with absence of a response. The low incidence of COVID-19 might reflect vaccine protection *via* cellular immunity and/or good adherence to shielding measures.

