A virtual crossmatch-based strategy for perioperative desensitisation in lung transplant recipients with pre-formed donor-specific antibodies: 3-year outcome

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A perioperative desensitisation protocol in lung transplant recipients with high pre-formed DSAs was associated with satisfactory outcome. Cleared pre-formed DSAs after desensitisation was identified as an independent predictor of graft survival. https://bit.ly/3mN6Oky

Cite this article as: Parquin F, Zuber B, Vallée A, *et al*. A virtual crossmatch-based strategy for perioperative desensitisation in lung transplant recipients with pre-formed donor-specific antibodies: 3-year outcome. *Eur Respir J* 2021; 58: 2004090 [DOI: 10.1183/13993003.04090-2020].

This article has supplementary material available from erj.ersjournals.com

Received: 17 Nov 2020
Accepted: 8 April 2021

Abstract

Background Pre-formed donor-specific antibodies (DSAs) are associated with worse outcome after lung transplantation (LTx) and might limit access to LTx. A virtual crossmatch-based strategy for perioperative desensitisation protocol has been used for immunised LTx candidates since 2012 at Foch Hospital (Suresnes, France). We compared the outcome of desensitised LTx candidates with high DSA mean fluorescence intensity and those with low or no pre-formed DSAs, not desensitised.

Methods For all consecutive LTx recipients (January 2012 to March 2018), freedom from chronic lung allograft dysfunction (CLAD) and graft survival were assessed using Kaplan–Meier analysis and Cox multivariate analysis.

Results We compared outcomes for desensitised patients with high pre-formed DSAs (n=39) and those with no (n=216) or low pre-formed DSAs (n=66). The desensitisation protocol decreased the level of immunodominant DSA (class I/II) at 1, 3 and 6 months post-LTx (p<0.001, p<0.01 and p<0.001, respectively). Freedom from CLAD and graft survival at 3 years was similar in the desensitised group as a whole and other groups. Nevertheless, incidence of CLAD was higher with persistent high-level DSAs than cleared high-level (p=0.044) or no DSAs (p=0.014). Conversely, graft survival was better with cleared high DSAs than persistent high-level, low-level and no pre-formed DSAs (p=0.019, p=0.025 and p=0.044, respectively). On multivariate analysis, graft survival was associated with cleared high DSAs (hazard ratio 0.12, 95% CI 0.02–0.85 *versus* no DSAs; p=0.035) and CLAD with persistent DSAs (3.04, 1.02–9.17 *versus* no pre-formed DSAs; p=0.048).

Conclusion The desensitisation protocol in LTx recipients with high pre-formed DSAs was associated with satisfactory outcome, with cleared high pre-formed DSAs after desensitisation identified as an independent predictor of graft survival.