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INTRODUCTION

Donor specific HLA antibodies (DSA) are associated with prolonged wait times and decreased allograft survival. Daratumumab is a CD38 monoclonal antibody used to deplete plasma cells. We aimed to evaluate the efficacy of a daratumumab based desensitization protocol could aid in getting highly sensitized critically ill lung transplant candidates transplanted and assess post-transplant outcomes.

METHODS

A single center retrospective observational analysis and chart review of seven lung transplant candidates treated with a daratumumab based desensitization protocol including weekly daratumumab, rituximab, and high dose IVIG. Transplanted patients received ATG induction and plasma exchange was given pre/post-operative. HLA antibodies were assessed with single antigen (One Lambda) in undiluted and diluted sera and calculated panel reactive antibody (CPRA) was determined.

RESULTS

CPRA decreased in lung transplant candidates that underwent protocolized desensitization with daratumumab from a median of 99.37% to 98.34% in undiluted sera and 97.36% to 69.38% in sera diluted at 1:10 (Figure 1A). 6/7 candidates were transplanted (Table 1). Median post-transplant follow-up was 919 days (range 6-1707 days). Only patient 1 received post-transplant daratumumab due to a rebound in DSA (Figure 1B) however, the patient is now 1637 days post-transplant with no antibody mediated rejection, clinically stable, and with only one weak DSA.

Table 1

	Sex	Race	Ethnicity	Blood Group	Lung Diagnosis	Height (cm)	Pre-Tx life support	Lung allocation score at Tx	Age at Tx	Pre-transplant Daratumumab Duration (days)	Days Post- transplant	Post-Tx Outcomes (Median follow up=919 days, range 6-1637 days)
1	F	Choose not to answer	Hispanic or Latino	0	Interstitial lung disease	160	VV ECMO	90.9	46	32	1637	Negative for rejection (A0/B0) POD27 POD56, POD90, POD217, POD 188 A2Bx C4d negative + acute lung injury with hyaline membranes, POD217 Negative for rejection (A0/B0)
2	F	White	Not Hispanic or Latino	A	Pulmonary arterial hypertension	173	VA ECMO	79.5	55	21	6	Expired on POD 6 due to a stroke
3	F	Other	Hispanic or Latino	0	Interstitial lung disease	150	Intermittent mechanical ventilation	84.1	57	29	1461	Negative for rejection (A0/B0) POD27 POD58, POD102, POD359
4	F	Other	Mexican, Mexican American, Chicano/a	0	Idiopathis pulmonary fibrosis	147	VV ECMO	87.75	67	29	1197	Negative for rejection (A0/B0) POD56 and POD91
5	F	White	Not Hispanic or Latino	A	Idiopathis pulmonary fibrosis	163	VV ECMO	93.63	61	110	641	Negative for rejection (A0/B0) POD31 POD85, POD193, and POD365
6	F	White	Hispanic or Latino	A	Pulmonary arterial hypertension	155	VA ECMO	49.768	45	61	119	Expired on POD 119 due to cardiac arrest
7	F	Not Listed	Hispanic or Latino	A	Pulmonary arterial hypertension	155	VA ECMO	N/A	N/A	36	N/A	Expired on the waitlist due to thrombocytopenia

Transplant Outcomes in Lung Transplant Candidates Desensitized with a Daratumumab Based Protocol

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\succ Daratumumab desensitization therapy reduced HLA allosensitization to permit transplant in 6 highly sensitized lung transplant candidates.

- \succ Although, the effect of the therapy may have been truncated given the high lung allocation score and the need for transplant in this critically ill population, post-transplant outcomes have been overall favorable with minimal rejection.
- > Multicenter prospective studies are needed to further evaluate the efficacy of desensitization with daratumumab.



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