In Person + Live Streaming
Organized in partnership with
Endorsed by
TTS 2024 ISTANBUL TURKEY
September 22-25
+ Virtual October 21-23

Correlation of pre and immediate post-transplant factors with initial dd-cfDNA% in patients in a surveillance protocol

Guil Rozenbaum[1,2], Andres Pelaez[1,2], Juan C. Salgado[1,2], Renata Ponsirenas[4], Jeany P. Villamizar [1,2], Sama Al-Bayati[1,2], Mauricio Tellez[1,2], Suresh Manickavel[1,2], Mauricio Pipkin[1,3], and Juan C. Fernandez[1,2]

[1]Miami Transplant Institute, Jackson Health System, Miami, FL, USA
[2]Division of Pulmonary and Critical Care, Department of Medicine, Miller School of Medicine Miami, University of Miami, Miami, FL, United States
[3]Division of Thoracic Surgery and Lung Transplant, Department of Medicine, Miller School of Medicine Miami, University of Miami, Miami, FL, USA
[4] Medical Affairs, CareDx, Brisbane, CA, USA

UNIVERSITY OF MIAMI
Miami Transplant Institute | Jackson HEALTH SYSTEM IN AFFILIATION WITH UHealth UNIVERSITY OF MIAMI HEALTH SYSTEM

Introduction

- The first step for a successful lung transplant is donor selection based on the quality of the donor's lungs, size matching, and geographic distance between the donor and recipient hospital.
- dd-cfDNA is a noninvasive strategy for monitoring the health of allografts and is routinely used for surveillance after lung transplantation.
- In kidney and heart transplantation, it has been reported that patients receiving DCD organs have higher levels of dd-cfDNA in the first months of the transplant.
- Other early characteristics of donor or immediate post-transplant complications didn't impact dd-cfDNA scores; however, in lung transplants, the decline post-surgery has been shown to take longer than in other organs previously studied.

AIM – To evaluate early post-transplant factors and their association with dd-cfDNA levels within the first months of transplant.

Methodology

Retrospective evaluation of patients who received a lung transplant between March/2022 and July/2023 in surveillance with dd-cfDNA.

Multiorgan recipients were excluded.

The differences in levels of first-drawn dd-cfDNA within the 1st three months of transplant were evaluated according to the following factors:

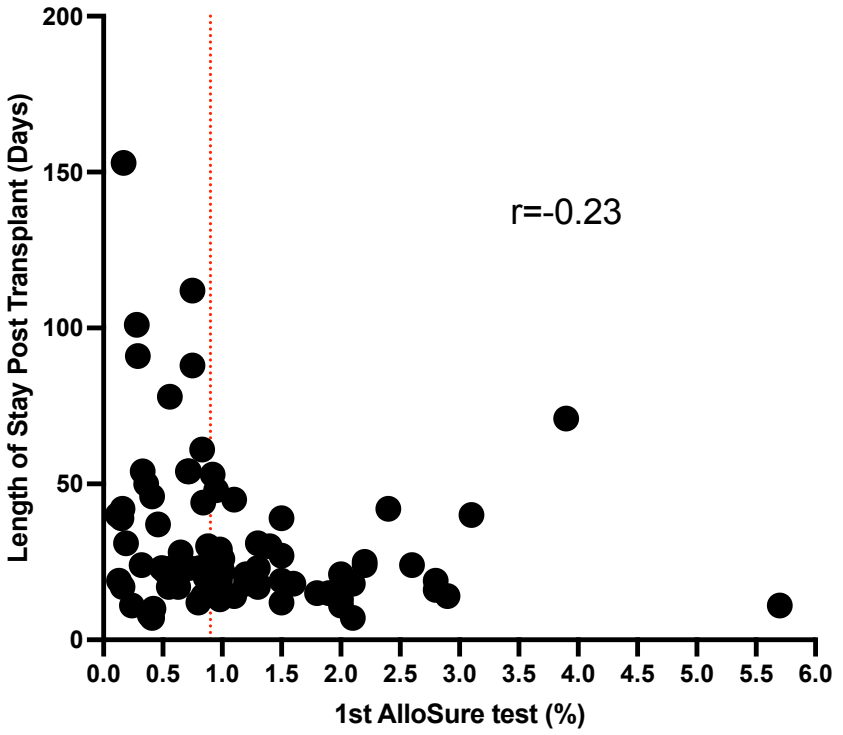
patient age	biological sex	pre-transplant sensitization	bilateral versus single transplants	type of organ donation (DCD versus DBD)	ischemia time	ECMO in 72hrs	length of stay post-transplant surgery

The time of 1st test draw was impacted by the length of stay, but there was no correlation with levels of dd-cfDNA

Miami Transplant Institute | Jackson Health System | UHealth

Table 1. Patient Demographics	
Number	87
Gender	
Male N(%)	53 (60.9)
Age (mean±SD)	50.7±10.9
Race	
White	28 (2)
African American	7 (8)
Hispanic	42 (48.3)
Type of Donor	
DCD N(%)	7 (8)
DBD N(%)	80 (92)
Bilateral N(%)	72 (82.8)
Single N(%)	15 (17.2)
Cold Ischaemia Time hours (mean±SD)	6.6 (0.8-18)
Sensitized PRA>10% N(%)	9 (10.3)
ECMO at 72 hours	14 (16.1)
Length of Stay post-transplant days median (min-max)	23 (7-123)
Time to 1st dd-cfDNA days median (min-max)	35 (15-155)
dd-cfDNA (%) median (min-max)	0 (0)

Figure 1. Correlation of 1st AlloSure levels with length of stay post-lung transplant



Levels of dd-cfDNA

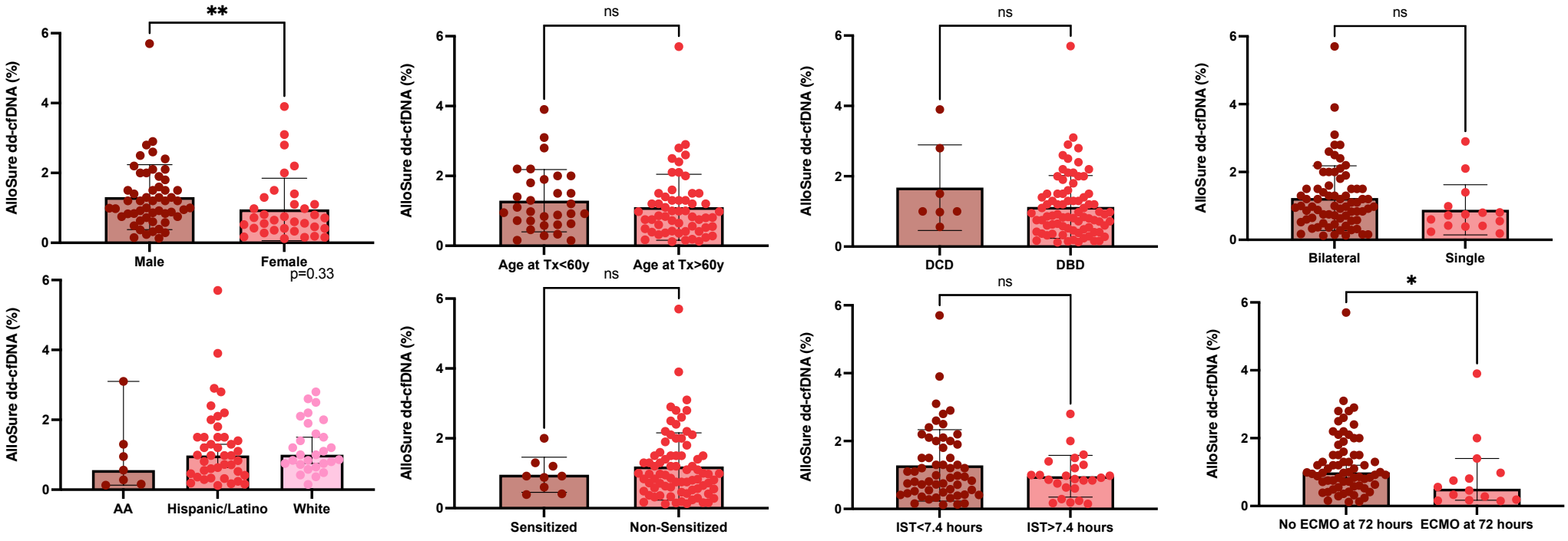


Figure 2. Donor-derived cell-free DNA levels according to pre- and immediate post-lung transplant factors

CONCLUSIONS

- UNLIKE OTHER ORGAN TRANSPLANT DATA, OUR COHORT DIDN'T INDICATE DIFFERENCES IN DD-CFDNA LEVELS BETWEEN DCD AND DBD LUNG RECIPIENTS; THIS MIGHT BE DUE TO THE SMALL POPULATION OF DCD RECIPIENTS.
- THE CONTINUATION OF ECMO SUPPORT AFTER SURGERY WAS CORRELATED WITH LOWER MEDIAN DD-CFDNA, AND MALE RECIPIENTS SHOWED HIGHER LEVELS OF DD-CFDNA.
- UNDERSTANDING THE FACTORS THAT INFLUENCE DD-CFDNA EARLY POST-TRANSPLANT IS ESSENTIAL TO ESTABLISHING A BASELINE FOR SURVEILLANCE OF FUTURE EVENTS.