INCREASED RISK OF HYPERCONTRACTILE ESOPHAGEAL MOTILITY POST LUNG TRANSPLANT

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INTRODUCTION

- Abnormal Esophageal motility and GERD are associated with poor lung transplant outcomes
- Post-lung transplant manometric evaluation may help prevent rejection and its common mediator chronic lung allograft dysfunction (CLAD).

AIM

- We have previously shown pre-operative manometric evaluation is critical for lung-transplant selection.
- We hypothesized that there is increase esophageal dysmotility post-lung transplant associated with worsened CLAD.

METHODS

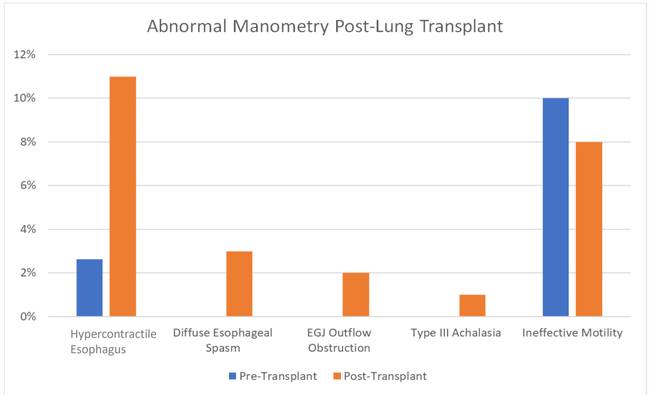
- In this retrospective 10-year cohort study, we analyzed all patients who underwent lung transplantation from 2009-2019.
- Time-to-event analysis using Cox proportional hazards model was utilized for mortality, acute rejection by biopsy, and the development of CLAD, testing pre- and post-transplant motility as a predictor for the above adjusted for age, gender, BMI, and transplant status (single vs. double lung).
- Manometric diagnoses were done using Chicago Classification 4.0. Pre-transplant GERD was defined based on greater or equal to 6% of time pH being < 4, abnormal DeMeester score, evidence of Barrett's esophagus, peptic strictures, and/or esophagitis

RESULTS

Table 1. Manometry Pre- and Post- Lung Transplant

		Pre-Transplant	Post-Transplant	P-value
N		79	166	
Age (mean +/-SE)		66	64	
Ethnicity (Caucasian)		94%	94%	
Gender (Male)		62%	53%	
Total % Time pH <4 (median IQR)		3.5%	3.8%	
Type of Transplant				
	Single	58%	24%	
	Double	42%	76%	
PPI Use		43%	50%	
Manometry				
	Normal	87%	75%	
	Hypercontractile Esophagus	3%	11%	**<0.01**
	Diffuse Esophageal Spasm	0%	3%	**<0.01**
	EGJ Outflow Obstruction	0%	2%	
	Type III Achalasia	0%	1%	
	Ineffective Motility	10%	8%	

Figure 2: Post-Lung Transplant Manometric Diagnosis



RESULTS

- 227 patients who underwent lung transplantation were analyzed in this study. 79 patients underwent pre-operative manometry with the most common diagnosis being normal (87%, n=66), Ineffective Motility (11%, n=8), and Hypercontractile (3%, n=2).
- Post-lung transplant manometry (n=166) showed an increased risk of hypercontractile esophagus (11% ($p<0.01$), Diffuse Esophageal Spasm (DES) 3% ($p<0.01$, Type III achalasia 1%, EGJ Outflow obstruction 2%) (Table 1).
- This was associated with an increase rate of CLAD (37% vs 25%, $p<0.01$).
- For patients who had pre- and post-lung transplant manometry (n=60), there is a similar increase in hypercontractile esophageal motility (11%) and DES (4%).

CONCLUSION

- We found increasing rates of hypercontractile esophageal motility independent of underlying demographics, pulmonary pathology, or surgical intervention.
- In this cohort, there was an associated increased risk of CLAD who have esophageal dysmotility. Effective post-transplant esophageal dysfunction management can potentially decrease CLAD which would improve overall post-transplant survivorship.

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