What are the Predictors of Long-term Work Participation in Patients with Cystic Fibrosis (CF) undergoing Lung Transplantation (LTx)?

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Summary

Work participation reflects the quality of life and performance of surgery for cystic fibrosis patients after lung transplantation. We identified the predictors for long-term work participation:

- *Pre-employment*, *Education* are predictors for long-term work participation.
- Time-dependent predictor: *CLAD* has an effect on long-term work status.
- Time-dependent predictor: *Kidney-Dialysis* has an effect on long-term work percentage.

Background and Study Aim

- Cystic fibrosis is a type of dysfunction of secretory glands, which affects lungs and other organs.
- Lung transplantation (LTx) is the treatment for advanced lung diseases for CF patients.
- LTx helps to improve quality of life and possibly work participation after LTx.
- There might be transplantation-related rejections, infections and complications after LTx, affecting the work participation.

Study Aim: Identification of the predictors for long-term work participation after LTx

Study Design and Method

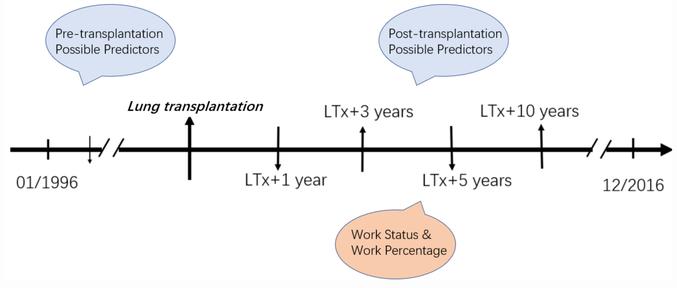

Figure 1: Study Design of Lung Transplantation

- Study Design
  1. Pre-LTx: Possible factors of characteristics from patients charts.
  2. Post-LTx: Outcomes and possible factors of rejections and infections (both with repeated measurements).
- Study Method
  1. Generalized Linear Regression for time-specific work participation.
  2. Longitudinal Data Analysis for long-term work participation.

Possible Predictors

- Time-independent factors:
  Age, BMI, Six-minute Walk Distance, Best FEV1 Predicted, Waiting Time; Sex, Education, Relationship Status, Living Status, Pre-employment Status.
- Time-dependent factors with repeated measurements:
  Chronic Lung Alograft Dysfunction (CLAD), Cancer, Kidney-Dialysis.

Data Description

Time-dependent variables at different time points

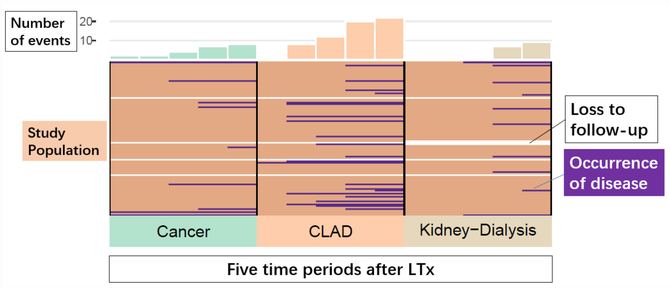

Figure 2: Time-dependent data after LTx

Outcomes at different time points

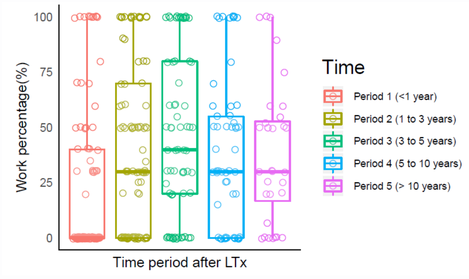

Figure 3: Work percentage after LTx for study population

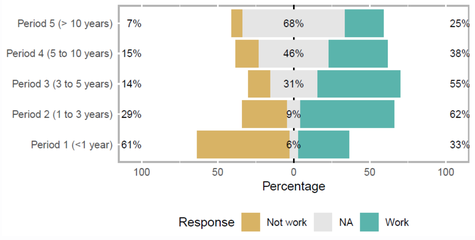

Figure 4: Work status after LTx for study population

Result I (time-specific work participation)

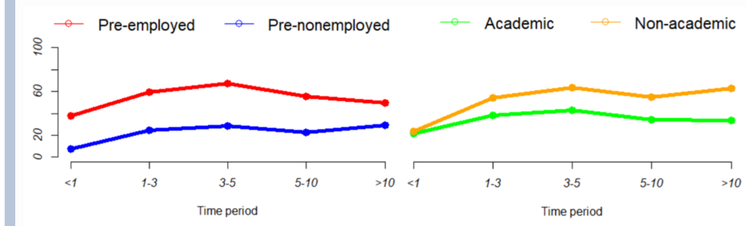

Figure 5: Work percentage over time in subgroups

Pre-employment and *Education* are useful predictors for both work status and work percentage after lung transplantation.

Result II (long-term work participation)

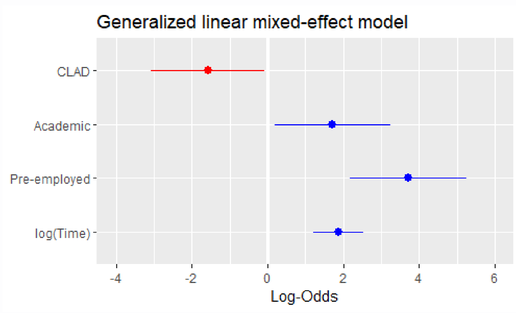

Figure 6: Log-odds of long-term work status

Pre-employed, academic-educated patients who had no CLAD problems are more likely to return to work.

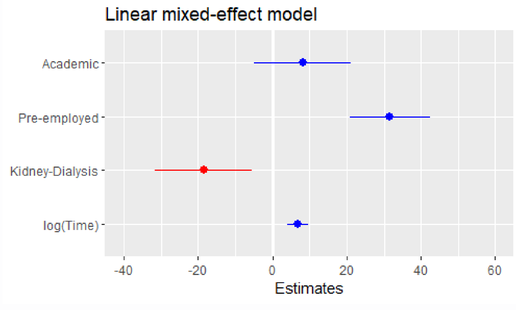

Figure 7: Estimated coefficients of long-term work percentage

Pre-employed, academic-educated patients who had no kidney transplantation or dialysis are more likely to return to work.