ISHLT 2021 41st Annual Meeting & Scientific Sessions VIRTUAL EXPERIENCE #ISHLT2021

(https://ishlt.org/ishlt2021)

Session POSTER SESSION - Advanced Lung Failure and Transplantation

# 794 - Clinical and Functional Outcomes after Lung Transplantation with Grafts from Donation after Circulatory (DCD) Donors. Preliminary Results of a Clinical Trial

**Authors**

A. Palleschi[1], A. Zanella[2], V. Musso[2], F. Damarco[3], R. Carrinola[3], A. Mazzucco[2], C. Uslenghi[2], V. Rossetti[3], E. Benazzi[3], G. Bonitta[3], M. Zanierato[4], G. Citerio[5], F. Valenza[2], M. Cardillo[6], M. Nosotti[1]. *[1]Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy, [2]University of Milan, Milan, Italy, [3]Fondazione IRCCS Ca' Granda - Ospedale Maggiore Policlinico, Milan, Italy, [4]University of Turin Medical School Hospital, Turin, Italy, [5]University of Milan-Bicocca, Milan, Italy, [6]National Transplant Center, Rome, Italy,*

**Disclosures**

**A. Palleschi:** None. **A. Zanella:** None. **V. Musso:** None. **F. Damarco:** None. **R. Carrinola:** None. **A. Mazzucco:** None. **C. Uslenghi:** None. **V. Rossetti:** None. **E. Benazzi:** None. **G. Bonitta:** None. **M. Zanierato:** None. **G. Citerio:** None. **F. Valenza:** None. **M. Cardillo:** None. **M. Nosotti:** None.

**Abstract or Presentation Description**

**Purpose:** We present the results of a clinical trial (NCT02061462) comparing outcomes after lung transplantation (LT) of subjects receiving lungs from donation after brain death (DBD) donors with that of subjects receiving lungs from donation after circulatory death (DCD) donors, procured using our original open lung strategy. Briefly, our protocol consists of a non-rapid normothermic open-lung procurement using recruitment manoeuvres, protective ventilation and CPAP without topical cooling.

**Methods:** We evaluated patients undergoing bilateral LT from 11/2014 to 07/2019; exclusion criteria: recipients ≤14 years, re-LT, donors ≥65 years, DCD category I and IV. Variables were prospectively recorded as well as respiratory functional parameters in the first year.

**Results:** We performed 143 LT; 22 cases were excluded, 121 were enrolled: 11 recipients received lungs from DCD donors (5 and 6 from DCD category II and III, respectively). The two groups had similar features. Most of the subjects had cystic fibrosis (72,7% and 61,9% of DCD and DBD, respectively). DCD donors' BMI was significantly higher (p=0.022); 15,5% of DBD grafts underwent machine perfusion. Duration of postoperative mechanical ventilation was higher in the DCD group (DCD vs DBD=2 vs 1 day, p= 0.011). Incidence of grade 3 primary graft dysfunction was 27,3% in the DCD group and 18,2% in the DBD group (p=0.742). Cold ischemia and preservation times were significantly higher in the DCD group (p<0.001). Airway complications occurred in 18,2% and 6,4% in DCD and DBD recipients, respectively (Table 1). Mean FEV1 was significantly higher in the DBD group at 6 months (83,5% vs 78,5%) but not at 1 year (86,0% vs 81,7%). FVC and Tiffenau did not significantly differ.

**Conclusion:** Regardless of the small study population, our results are encouraging. Our data show the feasibility of LT from DCD donors using our original protocol, with adequate grafts function and survival.

Table 1. Clinical details and relevat time-points of patients' course

| Variable | DCD | DBD | p-value |
|---|---|---|---|
| Donor sex (Female), n(%) | 1 (9.1) | 41 (37.3) | 0.061 |
| Donor age, median (IQR) | 53.0 (8.5) | 49.0 (19.0) | 0.168 |
| Donor BMI, median (IQR) | 27.7 (5.5) | 24.8 (4.4) | 0.022 |
| Donor smoking (Non-smoker), n (%) | 7 (63.6) | 73 (66.4) | 0.855 |
| Sex mismatch, n (%) | 5 (45.5) | 16 (14.5) | 0.009 |
| Recipient age, median (IQR) | 42.0 (17.5) | 36.5 (24.8) | 0.836 |
| LAS, median (IQR) | 42.9 (9.0) | 38.5 (12.6) | 0.652 |
| Incision (Clamshell), n (%) | 9 (81.8) | 71 (64.5) | 0.249 |
| Cold ischemic time 1st lung/2nd lung, median (IQR) | 595 (159)/ 820 (155) | 338 (157)/ 557 (181) | <0.001 |
| Total preservation time 1st lung/2nd lung, median (IQR) | 1058 (125)/ 1286 (102) | 433 (175)/ 641 (213) | <0.001 |
| Intraoperative extracorporeal support, n (%) | 7 (63.6) | 51 (46.4) | 0.274 |
| PGD grade 3 (24-72h), n(%) | 3 (27.3) | 20 (18.2) | 0.742 |

| | | | |
|---|---|---|---|
| **Postoperative mechanical ventilation days, median (IQR)** | 2.0 (2.5) | 1.0 (2.0) | 0.011 |
| **Airways complications, n (%)** | 2 (18.2) | 7 (6.4) | 0.154 |
| **90-day mortality, n (%)** | 0 (0.0) | 5 (4.6) | 0.999 |
| **Acute lung allograft dysfunction, n (%)** | 3 (27.3) | 34 (30.9) | 0.999 |
| **Chronic lung allograft dysfunction-free survival at 5 years, (95% CI)** | 1 | 0.60 (0.49-0.75) | |
| **Overall survival at 3 years, (95% CI)** | 1 | 0.75 (0.67-0.84) | |
| **Overall survival at 5 years, (95% CI)** | 1 | 0.70 (0.59-0.81) | |