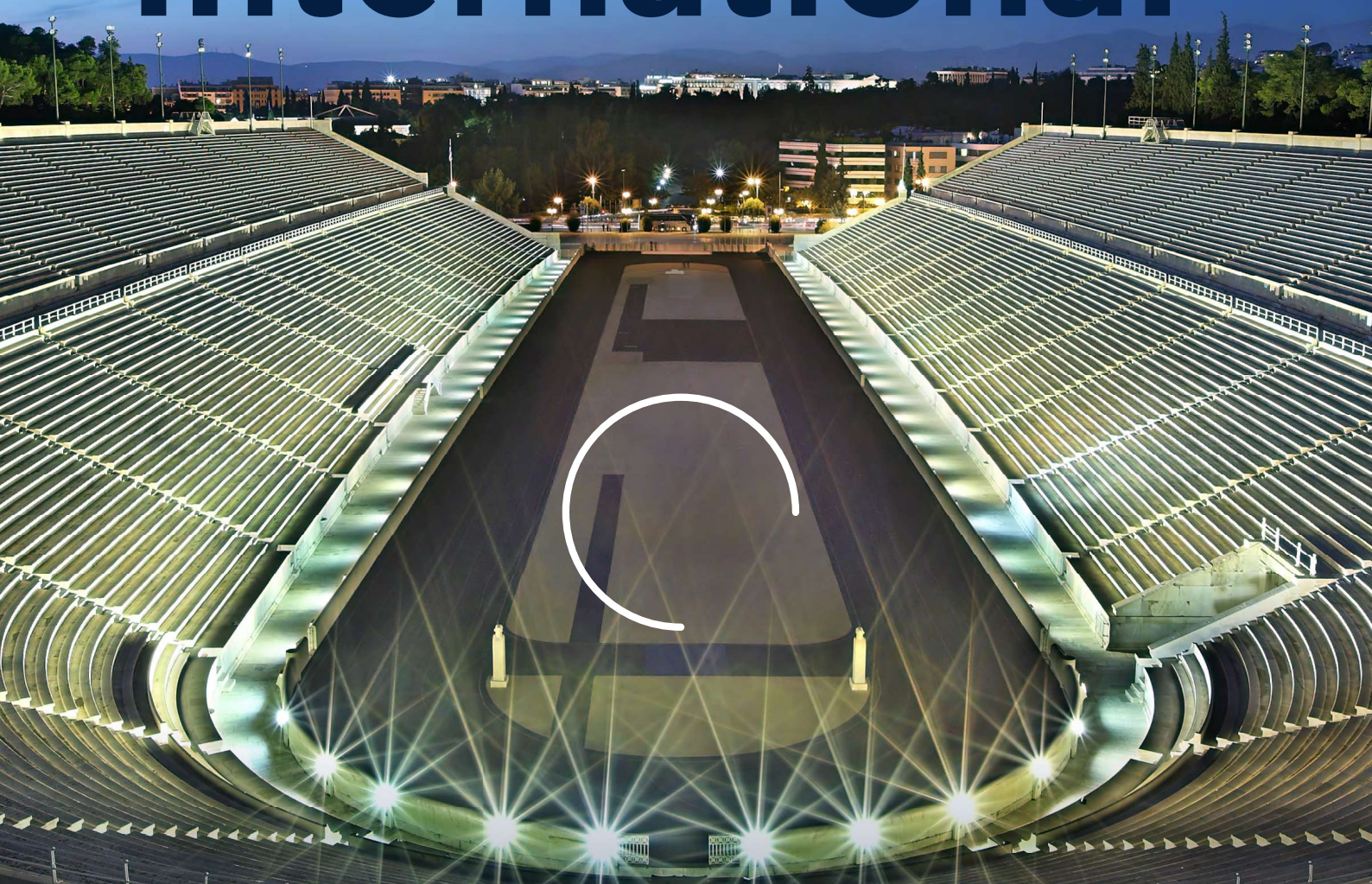
ESOTCongress

THE INTERNATIONAL TRANSPLANT CONGRESS®

ATHENS | 17-20 SEPTEMBER 2023

Transplant International



21st Congress of the European Society for Organ Transplantation

17 September - 20 September 2023. Athens, Greece

esotcongress.org

FULL ORALS

Molecular monitoring of lung allograft rejection

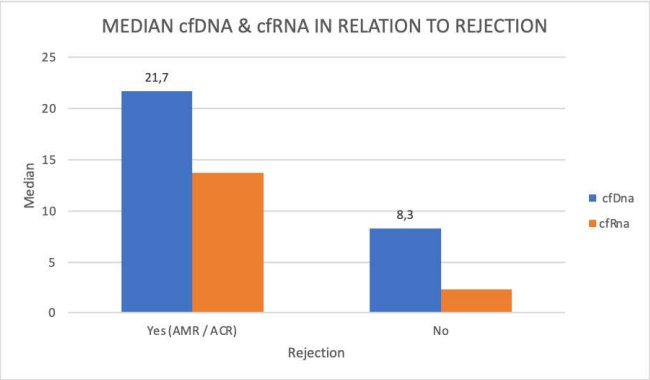
OS7_7 DONOR-DERIVED CELL-FREE DNA AND CELL-FREE RNA LEVELS USING A COST-EFFECTIVE LIQUID BIOPSY TECHNIQUE MONITORING LUNG ALLOGRAFT REJECTION

Owais Tisekar*[1], MD Moiz Lalani[1], Vijil Rahulan[1], Samuel Devi[1], Manjunath Negigowda[1], Menander M[1], Prabhat Dutta[1], Sandeep Attawar[1]

[1]Krishna Institute of Medical Sciences , Institute of Heart and Lung Transplant, hyderabad, India

Background: Donor-derived cell-free DNA (dd-cfDNA) and cell-free RNA are non-invasive tests that look for donor-specific DNA/RNA markers in recipient plasma. Next Generation Sequencing (NGS), droplet digital PCR (ddPCR), and massively multiplexed PCR (mmPCR) platforms, which are currently available to diagnose allograft rejection, are not economically viable in developing countries. To address this problem, we created a real-time PCR-based donor-derived cell-free DNA (dd-cfDNA) and cell-free RNA (dd-cfRNA) assay.
Methods: We used a novel PCR assay to measure donor-derived cell-free DNA (dd-cfDNA) and donor-derived cell-free RNA (dd-cfRNA) in 123 plasma samples from 60 lung transplant recipients to diagnose acute rejection.
Preoperative, intraoperative, and postoperative risk factors were subjected to regression analysis.
Results: The majority of the patients (61.2%) were male, with a mean age of 47.37 years (range: 14-72 years) and a BMI of 22.84. (range: 14.1- 33.7). The most common pre-transplant diagnosis was idiopathic pulmonary fibrosis (35.8%), followed by chronic hypersensitivity pneumonitis (15.4%) and connective tissue-related interstitial disease (8.9%).Our key findings are as follows:1. When compared to the stable organ (median 8.3; IQR: 0.0-40.65 ng /µl)., the dd-cfDNA level was higher in acute rejection (median 21.7 ng/l, interquartile range (IQR): -0.0- 95.65 ng/l). 2. The dd-cfRNA level was higher in acute rejection (median 13.75 ng/l, interquartile range (IQR):-0.0- 46.8 ng/l) than in stable organ (median 2.3 ng/l, IQR:-0.0- 17.3 ng/l).3. Data analysis of dd-cfDNA levels revealed a rejection sensitivity of 56.7% and specificity of 79.7%, whereas dd-cfRNA levels revealed a rejection sensitivity of 33% and specificity of 77.1%. However, the positive predictive values for dd-cfDNA and dd-cfRNA were only 28.8% and 33%, respectively, while the negative predictive values were 89.68% and 87.1%, respectively.4. Using multinomial logistic regression, we discovered that only donor ischaemia time had a statistically significant impact on dd-cfDNA or dd-cfRNA levels.
Conclusions:dd-cfRNA, like dd-cfDNA, has good negative predictive values in detecting rejection that histopathology may have missed.

Figure 1: Median cfDna & cfRna in relation to rejection



OS7_8 INDUCTION EXTRACORPOREAL PHOTOPHERESIS STIMULATES BENEFICIAL IMMUNE MODULATION IN CYSTIC FIBROSIS PATIENTS UNDERGOING LUNG TRANSPLANTATION

Ilaria Righi*[1], Claudio Fenizia[2], Claudia Vanetti[2], Lorella Torretta[1], Letizia Corinna Morlacchi[1], Valeria Rossetti[1], Lorenzo Rosso[1], Giacomo Grisorio[3], Mario Nosotti[1], Daria Trabattoni[2], Mario Clerici[4]

[1]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [2]University of Milan, Department of Biomedical and Clinical sciences, Milan, Italy, [3]University of Milan, Milan, Italy, [4]University of Milan, Department of Pathophysiology and Transplantation, Milan, Italy

Background: Chronic rejection (CR) is the leading cause of late morbidity and mortality upon lung transplantation (LuTx). Extracorporeal photopheresis (ECP) has emerged as a promising immunomodulatory treatment against rejection. We performed and in-depth investigation of the immunological effects of induction ECP in LuTx recipients with a diagnosis of cystic fibrosis (CF).
Methods: A pilot clinical trial enrolled 20 CF LuTx patients who were randomly allocated in 2 arms: standard immunosuppressive therapy alone *vs.* standard immunosuppressive therapy plus ECP (one cycle within 72 hours of transplantation followed by 5 cycles in the following 3 months). Functional activation of T and NK subpopulations as well as mRNA expression and cytokine secretion profiling were evaluated in peripheral blood and in bronchoalveolar lavage (BAL) before the first cycle and 48 hours after the end of each cycle and up to 12 months after LuTx. Clinical parameters, including respiratory volumes (e.g. FEV1), rejection episodes and infections, were analyzed as well.
Results: ECP was well tolerated with no complications nor opportunistic infections. Rejection rate was comparable in the two groups Notably, a significantly better FEV1 was observedin the ECP group overtime. Treg lymphocytes and IL10-producing NKs were significantly increased, while Th17 cells were significantly reduced in the ECP group compared to the control. Cytokine profile showed that ECP reduced pro-inflammatory cytokines (e.g. IL1b, IL6) production, increasing that of anti-inflammatory cytokines (e.g. IL10, IL1RA) both in plasma and BAL
Conclusions: Induction ECP is associated with immune modulation resulting in improved patients' respiratory performance. More extensive studies and longer follow-up are needed to verify if ECP-induced immune modulation will have a beneficial effect of organ rejection as well.

Kidney allocation to improve outcomes

OS8_1 KIDNEY TRANSPLANTATION FROM UNCONTROLLED DONATION AFTER CARDIAC DEATH, AN OPTION WITH EXCELLENT RESULTS IN THE LONG TIME

Maria Molina*[1;2], Javier Paúl-Martínez[1], Marina Urrutia-Jou[1], Esther González Monte[2], Angel Sevillano[2], Mario Fernández-Ruiz[2], Carles Cañameras[1], Josep Riera[1], Rosana Gelpi[1], Angela Casas[1], Gregorio Romero[1], Monica Bolufer[1], Jimena Cabrera[3;4], Anna Vila-Santandreu[1], Amado Andrés[2]

[1]Hospital Universitari Germans Trias i Pujol, Badalona, Spain, [2]Hospital Universitario 12 de Octubre, Madrid, Spain, [3]Programa de Prevención y Tratamiento de las Glomerulopatías, Centro de Nefrología, Hospital de Clínicas, Universidad de la República., Montevideo, Uruguay, [4]Department of Nephrology, Hospital Evangelico., Montevideo, Uruguay

Background: Kidney transplantation (KT) from uncontrolled donation after cardiac death (uDCD) has as good results as KT from donation after brain death (DBD) after 5 and 10 years of follow-up. The results after these periods are unknown.
Methods: Unicentric retrospective cohorts study that compared 237 KT from uDCD with 237 KT from standard DBD after 5, 10 and 15 years of follow-up. We measured basal demographics from donor, recipients and donation procurement; and graft survival, patient survival and renal function.
Aim: To compare the graft survival, patient survival and renal function of KT from uDCD to KT from standard DBD after 15 years of follow-up.
Results: uDCD donors had worse renal function at the moment of procurement (creatinine 1.3±0.4 vs 0.8±0.2 mg/dL; p<0.001) and delayed graft function was more frequency (73.4% vs 46.4%; p<0.001). Thymoglobulin were administered to 92.8% of KT from uDCD vs none of KT from DBD (p<0.001). There was more acute rejection in KT from DBD (12.2% vs 24.5%; p=0.001). Graft's survival (non-censured by non-primary function or patient death) 5, 10 and 15 year after KT was in KT from uDCD 86.1%, 82.5% and 79.2% vs in KT from DBD 89.6%, 81.4% and 73% (p=0.97). Kaplan-Meier curve is shown in Figure 1. The patient's survival 5, 10 and 15 year after KT was in KT from uDCD 91.9%, 86.3% and 83.5% vs in KT from DBD 92.4%, 84.2% and 72.5% (p=0.33). Serum creatinine were similar in both groups in the different periods: 1st year (1.40 vs 1.39; p=0.83), 5th years (1.36 vs 1.41; p=0.33), 10th year (1.26 vs 1.50; p=0.23) and 15th year (1.44 vs 1.43; p=0.93).