

was reported in 182 cases (42 infections, 4 ACR, 2 AMR, 2 graft dysfunction and 132 "other reasons"). 7 deaths and 2 cardiac re-transplantations were reported and 19 patients were diagnosed with cancer. In patients who were hospitalized for infections, the median GEP score was higher [32 (26-35)] than the median of GEP without hospitalization for infections [29 (24-32)], $P=0.028$.

Conclusion: Patients in the OAR have a higher incidence of hospitalization for infections and new diagnoses of cancer than ACR. The association between higher GEP scores and infections was unexpected and is under further investigation.

Number of visits with $\geq 2R$ acute cellular rejections			
Interval post-transplant	2R	3R	Total number of study visits
2-6 months, n	6	1	562
7-12 months, n	7	1	807
13-36 months, n	3	1	658
>36 months, n	0	0	144
Total, n	16	3	2171

559

Evaluation of Left Ventricular Myocardial Mechanics in Heart Transplant Recipients Using Three-Dimensional Speckle Tracking Echocardiography

A. Assabiny, A. Kovacs, A. Kosztin, B.F. Farkas, M. Tokodi, B. Sax, B. Merkely. Heart and Vascular Center, Semmelweis University, Budapest, Hungary.

Purpose: Speckle-tracking echocardiography is a novel imaging technique to describe myocardial deformation. Derived parameters have been proven to be useful in the early detection of myocardial dysfunction in several cardiac pathologies. Current echocardiographical parameters are not sensitive enough to predict rejection in cardiac transplant recipients. Deformation imaging may possibly allow identification of subclinical dysfunction associated with allograft rejection. In order to gain insight into deformation characteristics of allograft rejection, we first aimed to evaluate complex 3D deformation of the left ventricle in patients after cardiac transplant (HTX) and compare them to healthy volunteers.

Methods: Twenty-four HTX patients (mean age 54 ± 14 years, with a median of 366 days after HTX) were enrolled and compared to 17 age- and gender matched healthy volunteers. Patients with acute allograft rejection were excluded (latest endomyocardial biopsy ISHLT Grade 0R). Beyond standard echocardiographic protocol, we acquired 3D datasets from apical view using multi-beat reconstruction from 4 or 6 cardiac cycles. Using a dedicated software for left ventricular (LV) quantification (4D LV-Function 3) ejection fraction (EF) was measured. Global longitudinal (GLS) and circumferential (GCS) strain were quantified by 3D speckle tracking analysis. Systolic dyssynchrony index (SDI) derived from 16 subvolumes of the LV was also assessed.

Results: According to the 3D measurements EF was similar in the two groups (HTX vs control: 62 ± 8 vs 64 ± 4 %). GCS did not differ between groups (GCS: -30 ± 7 vs -31 ± 4 %) but GLS was significantly decreased in HTX patients compared to controls (-18 ± 4 vs -21 ± 1 %, $p < 0.01$). SDI referring to intraventricular dyssynchrony was higher in HTX patients (9 ± 3 vs 4 ± 2 %, $p < 0.01$).

Conclusion: Our results indicate that despite normal ejection fraction 3D longitudinal strain is decreased in HTX recipients. Underlying mechanism may involve hemodynamical changes secondary to the observed mild intraventricular dyssynchrony. The above characteristics of LV deformation in HTX recipients should be taken into account when assessing new echocardiographic parameters specific for cardiac allograft rejection.

560

Significant Tricuspid Insufficiency After Cardiac Transplantation: Which Risk Factor Has the Most Influence

V. Hajjiev, C. Knosalla, M. Dandel, M. Pasic, S. Buz, R. Hetzer. Cardiathoracic Surgery, German Heart Institute in Berlin, Berlin, Germany.

Purpose: The occurrence of tricuspid insufficiency (TI) is common after orthotopic heart transplantation (OHT). Sometimes it can be serious and lead to mortality. We investigated possible variables influencing TI after OHT and identified possible risk factors responsible for clinical significant TI development and progression.

Methods: We identified an incidence of tricuspid insufficiency in 857 from 1515 patients who underwent OHT between years 1986-2010, survived at least 12 months and had echocardiographic assessments available. The variables that can influence tricuspid insufficiency statistically analysed on representative group of 152 patients. The patients of representative group, according to severity of TI divided into two groups, patients with $TI \leq 2$ grade and with $TI > 2$ grade.

Results: We found no significant difference among the groups in terms of recipient gender, basic disease, recipient weight, recipient's BMI, BSA, pre-operative pulmonary arterial pressure, donor organ ischemia time, donor gender, age, height, weight, BMI, BSA, chest X-Ray thorax width, chest X-ray heart width, chest X-Ray thorax/heart ratio, highest rejection grade on biopsy and vascular reaction. In univariate analysis study variables such as age of recipient ($p=0.027$), donor to recipient right atrium anterior wall ratio ($p < 0.001$), tricuspid annulus anterior to septal leaflet excursion ratio ($p=0.001$), dialysis ($p=0.026$), total biopsy number ($p=0.003$) showed significance and variables height of recipient ($p=0.080$), BMI donor to BMI recipient ratio ($p=0.080$) and number of biopsies with more than moderate grade ($p=0.067$) showed trend to significance for developing severe TI after OHT. In multivariate analysis we found that, there is an independent significant association between TI after OHT and donor to recipient right atrium anterior wall ratio, number of biopsies and dialysis. Moderate to severe and severe TI have no significance for mortality after OHT.

Conclusion: Donor to recipient right atrium front wall ratio, number of biopsy, and dialysis act as major risk factor for TI after OHT. Which shows that preserving annular geometry, decreasing biopsy number and preventing functional tricuspid insufficiency is essential for freedom from respectively further progression of tricuspid insufficiency after cardiac transplantation.

561

Our Experience with the Use of Allomap in Multiple Organ Recipients

S. Carey,¹ G. Saracino,² A. Jamil,¹ S. Hall.¹ ¹Advanced Heart and Lung, Baylor University Medical Center, Dallas, TX; ²Baylor University Medical Center, Dallas, TX.

Purpose: To describe the use of gene-expression profile testing (Allomap®) in multiple organ transplant recipients.

Methods: A retrospective analysis of 15 adult multiple-organ transplant recipients (Heart/Kidney $n=10$, Heart/Liver $n=4$, Heart/Lung $n=1$) performed from 1/1/2007-9/30/2015, were examined. Additionally, the multi organ transplant cases were matched to heart only transplant controls based on age and gender using a 1:2 ratio. The Kaplan-Meier method was used to estimate cumulative patient survival and cumulative incidence of treated CMV and treated rejection. Survival curves were compared using the log-rank test. Linear mixed- models were used to study the association between Allomap® score and case group, Cylex® assay levels, target immunosuppressive therapy, CMV infection, endomyocardial biopsy (EMB) based treated rejections. Tukey method was used to adjust for multiple comparisons.

Results: Age-gender matched cases were not significantly different in demographic characteristics compared to the control group. There was no difference in patient 1-year survival, incidence of CMV, and incidence of rejection. The mean length of stay in hospital was longer in the multiorgan cases (20 days vs. 9 days, $p=0.029$). 4 cases (Heart/Kidney $n=2$, Heart/Liver $n=2$) and 6 controls were treated for CMV viremia. CMV viremia was associated with higher Allomap® scores (35 vs. 28, $p < 0.0215$) while no differences in Allomap® scores were observed in treated EMB proven rejection. Allomap® scores and immunosuppressive drug levels were not found to be statistically associated. When comparing Cylex® assay levels and Allomap® scores, low Cylex® levels were associated with high Allomap® scores (31 vs. 28, $p < 0.00374$). Conversely high Cylex® levels (24 vs. 28, $p < 0.0023$) compared to Cylex® levels at goal.

Conclusion: Consistent with previous heart only reports, higher Allomap® scores were found with CMV viremia in our total patient cohort. Conversely serial Allomap® scoring in multiple organ recipients was not found to be significantly different when compared to a matched heart recipient only control