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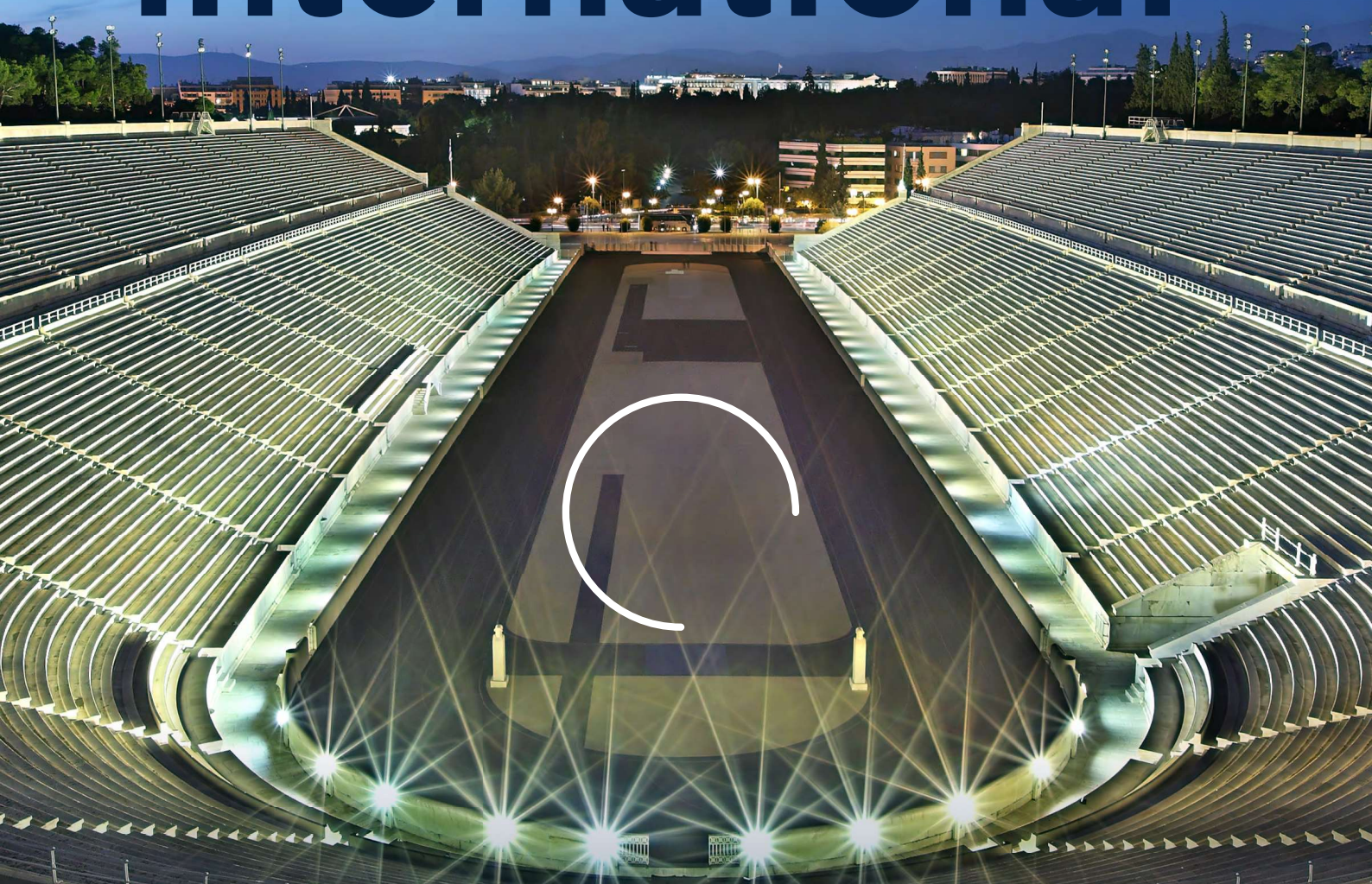

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BRIEF ORALS

Treatable traits lead the way towards better outcomes in lung transplantation

BOS6_5 COMPARISON OF PLASMA DONOR-DERIVED CELL-FREE DNA WITH LASHA SCORING SYSTEM IN LUNG TRANSPLANTATION: A SINGLE CENTRE EXPERIENCE

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Background: Donor-derived cell-free DNA (dd-cfDNA) has been investigated as a non-invasive alternative approach to transbronchial biopsies (TBBs) to evaluate lung allograft injury (LAI) following transplantation. The aim of the study was to compare the diagnostic yield of dd-cfDNA to scheduled TBBs systematically evaluated according to the LASHA template.
Methods: Twenty-one recipients were prospectively enrolled between October and November 2022. TBBs were scored according to LASHA template. Alveolar macrophages, oedema, and mild capillary dilation with score <2 were considered nonspecific and classified as unremarkable if not associated with altered microbiological or immunological findings. A comprehensive immunological and microbiological/cytological evaluation was carried out on blood and bronchoalveolar lavage (BAL), respectively. dd-cfDNA was measured (%) by NGS on plasma collected at the same time of TBBs.
Results: dd-cfDNA was under the threshold of 0.85% in 10 patients. In 8 patients, TBB was negative or unremarkable. None showed immunological complications. The negative predictive value was 80%. dd-cfDNA was over the threshold in 11 patients. The positive predictive value was 82%.
Conclusions: Plasma dd-cfDNA is highly predictive of LAI, even after a granular histological evaluation. Further studies are needed to confirm the clinical validity of cfDNA, especially for the detection of specific or concomitant pathological lesions of LAI.

Sex	Age (years)	Months From Ltx	CLAD	DSA	Altered Histological Parameters In LASHA Template	Infections in BAL	dd-cfDNA (%)	Lung Allograft Injury
M	66	26	0	-	Unremarkable	-	0,08	No
M	34	4	0	-	Negative	+	0,11	Yes
M	58	17	0	-	Unremarkable	-	0,13	No
M	66	3	0	-	Negative	-	0,22	No
F	61	21	0	-	Negative	-	0,24	No
M	55	8	1	-	Negative	-	0,26	No
F	33	2	0	-	Organizing pneumonia (I/R injury?)	-	0,26	No
F	26	94	0	-	Negative	-	0,35	No
F	34	52	0	-	Unremarkable	-	0,50	No
M	64	15	0	-	Neutrophilic/cellular debris in alveolar septa	-	0,58	Yes
F	24	7	0	-	Unremarkable	-	0,86	No
M	61	3	0	-	Neutrophils in alveolar septa	+	0,90	Yes
M	65	53	0	+	Unremarkable	-	1,27	Yes
F	40	5	0	-	Organizing pneumonia	+	1,28	Yes
F	26	181	1	-	Negative	-	1,68	Yes
F	21	17	0	-	A1B0	-	2,03	Yes
M	56	4	0	-	A3B0	+	3,54	Yes
M	65	5	0	-	Negative	+	4,67	Yes
M	46	128	0	-	Unremarkable	-	4,75	No
M	36	61	0	+	Unremarkable	+	5,40	Yes
F	41	63	2	+	Neutrophilic/cellular debris in alveolar septa	-	6,85	Yes

BOS6_6 DIAGNOSTIC YELD AND SAFETY OF CRYOBIOPSY VERSUS FORCEPS BIOPSY IN LUNG ALLOGRAFT RECIPIENTS: A SINGLE-CENTER RETROSPECTIVE ANALYSIS

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Background: Endoscopic surveillance with transbronchial biopsy in lung transplant (LTx) is crucial, since an early diagnosis of acute cellular rejection (AR) can affect long term survival. Histological diagnosis of AR is usually obtained using transbronchial forceps biopsy (FB). In recent years, transbronchial cryobiopsy (CB) has been increasingly used, as it obtains larger samples than FB, without crush artefacts. Few studies have compared the two methods in terms of diagnostic accuracy and safety. The aim of this study is to assess the diagnostic yield and safety of CB in comparison with FB, for sampling lung tissue in transplant recipients.
Methods: We analyzed through a retrospective study our case series of the two procedures. From January 2013 to December 2017, 251 FBs were performed in 110 patients, 223 for surveillance purposes and 28 on clinical indication. From January 2018 to October 2022, 218 consecutive CBs were performed in 137 patients, 159 for surveillance purposes and 59 on clinical indication. All biopsies were scored according to the ISHLT criteria. Clinical and functional data, complications, and histologic results were collected.
Results: Diagnostic yield was higher in the CB group for all parameters: grade of AR was detected in 95.0% vs 84.5% in the FB group (p<0.001). Diagnostic rate of airway inflammation was 65.1% vs 51.8% (p=0.005), for chronic rejection 89.0% vs 64.9% (p<0.001). Pneumothorax requiring chest drainage occurred in 3.6% in the CB group and in 4% of patients in the FB group (p non-significant). Moderate and severe bleeding complicated CB and FB procedures in 7 (3.2%) and 3 cases (1.3%), respectively (p=0.178).
Conclusions: Transbronchial cryobiopsies improved the diagnostic yield in the monitoring of the lung allograft. The risk of bleeding and pneumothorax has not increased significantly. Prospective studies will better define the role of CB after LTx.

BOS6_7 INFLUENCE OF THE RESPIRATORY TRACT'S MICROBIOLOGICAL SPECTRUM ON THE OUTCOME AFTER LUNG TRANSPLANTATION

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Background: Lung transplantation (LuTX) is the standard of care for patients with chronic progressive, end stage lung diseases. Adherence to prescribed immunosuppressive medication is crucial to prevent graft failure, but it also makes lung-allograft-recipients more susceptible to infections. Years of chronic disease and prior hospitalizations on one side, along with intensive-care stay and airway intubation prior to organ donation on the other, facilitate the spread of pathogenic germs in the respiratory tract. This retrospective cohort study aimed to investigate the relationship between the respiratory tract's germ spectrum and its impact on post-LuTX survival.
Methods: Only patients that received a single or double LuTX from 2014 onwards were considered for this study. In addition to a valid and complete follow-up after TX, inclusion criteria were pre- and postoperative sputum samples, as well as intraoperatively performed smear-tests of donor and recipient bronchus. Microbiological findings were categorized into bacteria and fungi. Bacteria were again grouped into gram-positive and gram-negative (aerobic/anaerobic) germs.
Results: Up to this point, 200 patients with valid data on pre-, intra- and postoperative microbiological testing have been included. The most common bacteria found were Staphylococcus aureus and Streptococcus pneumoniae, while the predominant fungi were Candida albicans and species. Positive microbiological findings in intraoperative and postoperative samples showed a trend towards a decreased five-year survival. Furthermore, preoperative sputum samples with positive fungal findings were significantly associated with a negative outcome.
Conclusions: This study suggests that the respiratory tract's microbiological composition can influence post-LuTX outcome and survival. As sepsis and multi organ failure, themselves often due to an infectious cause, have gradually replaced graft failure as the leading cause of death in LuTX-patients over the last decades, understanding the role of microbiological colonization is important for improving the outcome and long-term survival after LuTX.

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