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AntiHLA antibodies before and after Lung Transplantation: a role on medium – long term outcomes?

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Purpose

The development of donor specific human leukocyte antigen (HLA) antibodies (DSA) has already been identified as a risk factor for graft dysfunction and poor survival in the context of lung transplantation (LuTx), but available evidence is not conclusive. The aim of our study was to evaluate the possibly existing correlation between pre-existing and/or post transplant developing DSA and recipients' outcome

Methods

This was a prospective, observational study on consecutive LuTx recipients from January 2013 to December 2017. Every individual underwent DSA surveillance with blood specimens collection before and after LuTx surgical procedure. Three groups were defined based on pre-formed antibody setting at time of LuTx: silent, if no antibody was found on their blood; reactive, patients with non-DSA antibodies; and activated, patient with DSA antibodies. Correlation between antibodies panel (before and after LuTx) and outcomes (lung allograft dysfunction and survival) was then investigated.

Results

132 patients were considered; 70 (53%) males, median age at LuTx 36 (26; 51) years.

Among the "silent" patients: 63% remained negative after LuTx, 20% developed non-DSA and 17% DSA. Among "reactive" recipients: 15% became negative after LuTx, 39% maintained non-DSA and 46.2% developed de-novo DSA. Finally, considering "activated" individuals: the vast majority (80%) maintained pre-transplant DSA and developed new ones, while the remaining 20% lost pre-transplant DSA but showed de-novo non DSA. DSA tended to appear much earlier in pre-transplant allosensitized patients (1 vs. 3 months). These results are depicted in tables and figures.

Finally, both pre and post LuTx DSA showed correlation with the developmed of chronic lung allograft dysfunction (CLAD) (HR 3.43; 1.19-9.89 and HR 3.35; 1.46-7.68).

Figure A – Pre transplant antibodies status

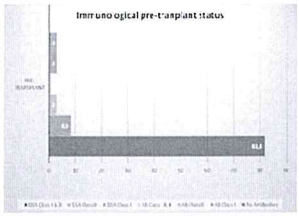
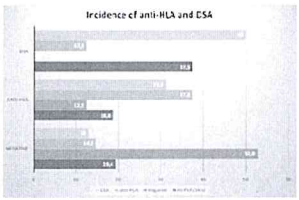


Figure B – Post transplant antibodies status



Tables

Pre-LuTx Ab setting	Post Transplant Ab development	
		Median time from LuTx (months)
Silent	Anti-HLA	4.5
	DSA	3
Reactive	Anti-HLA	5.5
	DSA	1
Activated	Anti-HLA	1
	DSA	0.5

Pre-transplant	Number (%)
Negative	108 (81,8%)
Ab Class I	11 (8,3%)
Ab Class II	4 (3%)
Ab Class I and II	1 (0,8%)
DSA Class I	4 (3%)
DSA Class II	4 (3%)
DSA Class I and II	0 (0%)

Pre-transplant	Post transplant							
	NO FUP/died	Negative	Ab Class I	Ab Class II	DSA Class I	DSA Class II	Ab Class I & II	DSA Class I & II
Negative	21 (19,5)	57 (52,8)	9 (8,3)	6 (5,6)	2 (1,9)	9 (8,3)	1 (0,9)	3 (2,8)
anti-HLA	3 (18,8)	2 (12,5)	5 (31,3)	1 (6,3)	1 (6,3)	3 (18,8)	0 (0)	1 (6,3)
DSA	3 (37,5)	0 (0)	0 (0)	1 (12,5)	0 (0)	2 (25)	0 (0)	2 (25)

Conclusions

These preliminary findings support the role of both pre-existing and post LuTx developed DSA as a potentially dangerous risk factor for CLAD development, while they did not correlate with acute cellular rejection and/or survival.

References

- Hachem RR, Kamoun M, Budev MM et al. *Human leukocyte antigens antibodies after lung transplantation: Primary results of the Halt study.* Am J Transplan 2018 Sep; 18 (9): 2285-2294.
- Levine DJ, Glanville Ar, Aboyoun C et al. *Antibody mediated rejection of the lung: a consensus report of the International Society for Heart and Lung Transplantation.* J Heart Lung Transplant 2016 Apr; 35 (4): 397-406.

Friday, April 5, 2019
6:00 PM - 7:15 PM

POSTER SESSION 3: LUNG FAILURE/TRANSPLANTATION (ADULT)

Room: Banda Sea 1

Poster Discussants:
Andrew Courtwright, MD, PhD, University of Pennsylvania, Philadelphia, PA, USA
Peter Hopkins, FRACP, Prince Charles Hospital, Brisbane, Australia
Lorriana Leard, MD, UCSF Medical Center, San Francisco, CA, USA
Deborah Levine, MD, UT Health Science Center, San Antonio, TX, USA
Sebastian Michel, MD, Ludwig Maximilian University/Munich University, Muenchen, Germany
Caroline Patterson, MD, Papworth Hospital, Cambridge, United Kingdom
Aida Venado, MD, UCSF Medical Center, San Francisco, CA, USA
Robin Vos, MD, PhD, University Hospitals Leuven, Leuven, Belgium

(1014) ***Time to Therapeutic Tacrolimus Serum Concentrations and the Impact on Early Acute Cellular Rejection in Adult Lung Transplant Recipients***; K. Mecadon[1], J. Scheffert[2], L. Shah[3], H. Robbins[3], M. Aversa[3], S. Arcasoy[3], L. Benvenuto[3]. *[1]Department of Pharmacy, Rhode Island Hospital, Providence, RI, [2]Department of Pharmacy, NewYork-Presbyterian Hospital, New York, NY, [3]Department of Medicine, Columbia University Irving Medical Center, New York, NY*

(1015) ***Acute Rejection (AR) and Lymphocytic Bronchiolitis (LB) in a Multicenter Lung Transplant Cohort***; J. L. Todd[1], M. L. Neely[1], H. Kopetskie[2], M. Sever[2], J. Kirchner[1], C. W. Frankel[1], L. D. Snyder[1], E. N. Pavlisko[1], T. Martinu[3], W. Tsuang[4], M. Shino[5], N. Williams[6], M. A. Robien[6], L. G. Singer[3], M. Budev[4], P. D. Shah[7], J. M. Reynolds[1], S. M. Palmer[1], J. A. Belperio[5], S. S. Weigt[5]. *[1]Duke Univ Med Ctr, Durham, NC, [2]Rho Federal Systems Division, Chapel Hill, NC, [3]University of Toronto, Toronto, ON, Canada, [4]Cleveland Clinic, Cleveland, OH, [5]University of California Los Angeles, Los Angeles, CA, [6]National Institute of Allergy and Infectious Disease, Bethesda, MD, [7]Johns Hopkins University, Baltimore, MD*

(1016) ***Impact of AMR Treatment on Graft Function in Lung Transplant Recipients***; L. Godinas, S. Verleden, B. Vanaudenaerde, D. Dierickx, D. Van Raemdonck, A. Neyrinck, G. Verleden, R. Vos. *University Hospitals Leuven, Leuven, Belgium*

(1017) ***Peripheral Blood Eosinophil Count as a Marker of Pulmonary Allograft Rejection***; S. Aguado Ibáñez, J. Carrillo, M. Aguilar, R. Laporta, C. López, G. Díaz, C. Salas, M. Ussetti. *Hospital Univ Puerta de Hierro, Majadahonda, Majadahonda, Spain*

(1018) ***Clinical Antibody Mediated Rejection of Lung is Not One Disease, but Includes Distinct Obstructive, Restrictive and Indolent Phenotypes***; D. Abelson[1], S. Garnett[2], A. Awford[1], A. Kwok[3], N. Watson[4], J. Colgan[1], A. Rigby[1], M. Plit[1], A. R. Glanville[1]. *[1]Lung Transplant Unit, St. Vincent's Hospital, Sydney, Australia, [2]Integrative Biomedical Sciences, University of Capetown, Capetown, South Africa, [3]Department of Radiology, St. Vincent's Hospital, Sydney, Australia, [4]Solid Organ Transplantation, Australian Red Cross Blood Service, Sydney, Australia*

(1019) ***Anti-HLA Antibodies before and after Lung Transplantation: A Role on Medium-Long Term Outcomes?***; E. Benazzi[1], L. Morlacchi[2], A. Cannavò[1], L. Rosso[3], A. Palleschi[3], V. Rossetti[2], I. Righi[3], S. Passamonti[1], B. Dalpedri[1], E. Longhi[1], M. Cardillo[1], P. Tarsia[2]. *[1]Transplant Coordination (NITp); Dept. of Services and Preventive Medicine, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano, Milano, Italy, [2]Internal Medicine Department, Respiratory Unit and Cystic Fibrosis Adult Centre, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano; Università degli Studi di Milano, Milano, Italy, [3]Thoracic Surgery and Lung Transplant Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano; Università degli Studi di Milano, Milano, Italy*

(1020) ***Evaluating Novel Graft Failure Thresholds after Lung Transplantation***; J. Liu, D. Li, K. Jackson, J. Weinkauf, A. Kapasi, D. Lien, A. Hirji, K. Halloran. *Department of Medicine, University of Alberta, Edmonton, AB, Canada*

(1021) ***Impact for Survival and Chronic Lung Allograft Dysfunction of ISHLT Consensus of Antibody Mediated Rejection after Lung Transplantation***; Y. Itoda[1], M. Sato[2], L. Thuita[3], H. NIikawa[4], K. S. Ayyat[4], T. Okamoto[4], C. F. Farver[5], A. Zhang[6], M. Budev[7], E. H. Balckstone[3], K. R. McCurry[4]. *[1]Cardiac Surgery, The University of Tokyo Hospital, Tokyo, Japan, [2]Thracic Surgery, The University of Tokyo Hospital, Tokyo, Japan, [3]Quantitative Health Sciences, Cleveland Clinic, Cleveland, OH, [4]Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, OH, [5]Anatomic Pathology, Cleveland Clinic, Cleveland, OH, [6]Allogen Department, Cleveland Clinic, Cleveland, OH, [7]Respiratory Institute, Cleveland Clinic, Cleveland, OH*

(1022) ***COMBINATION Therapies Including TOCILIZUMAB Decrease the Progression of CLAD: Initial Clinical Experience***; D. J. Ross[1], A. Der Hovanessian[2], B. Kubak[1], E. Reed[3], C. Natori[4], J. Schaenman[1], A. Ardehali[5]. *[1]Medicine, David Geffen - UCLA School of Medicine, Los Angeles, CA, [2]Medicine, David Geffen - UCLA School of Medicine, Los Angeles, CA, [3]Immunogenetics, David*

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