



JOINT INTERNATIONAL MEETING

22nd EAA Congress – 15th ISGA Congress –  
5th International Conference of Evolutionary  
Medicine



August 24-27, 2022  
Vilnius, Lithuania

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ABSTRACT BOOK

  
VILNIUS  
UNIVERSITY  
PRESS  
2022

# VENTILATION INHOMOGENEITY IN ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION RECIPIENTS

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**Background and Aim.** Lung injury in the context of chronic graft vs host disease (GvHD) is a well-recognized potentially life-threatening complication of allogeneic hematopoietic stem cell transplantation (HSCT). However, data on post-transplant lung injury in the absence of chronic GvHD are scarce. We hypothesized that deterioration of the lung function can occur even without GvHD lung function deteriorates after HSCT.

**Material and Methods.** We performed a case-control study. Nitrogen multiple breath washout (NMBW) was performed in 10 children before conditioning (control group) and 10 allogeneic graft recipients at least 3 months after HSCT (transplant group). All patients required HSCT because of malignancies or immunodeficiency. Only one patient had developed chronic pulmonary GvHD. Lung clearance index (LCI-5), acinar (Sacin) and conductive (Scond) ventilation heterogeneity, Pacin, Moment ratio and end-tidal N<sub>2</sub> after 6 lung volume turnovers (CnTO<sub>6</sub>) values were calculated using Exhalyzer D (ECO MEDICS, Switzerland). All results are shown as median and interquartile range (IQR), control group vs transplant group. Because of small sample size two sample Wilcoxon rank sum exact test was used.

**Results.** Median LCI-5 values were much higher after allogeneic HSCT, 5.82 (1.48) vs 6.89 (1.32), p=0.04.

CnTO<sub>6</sub> difference between groups (p=0.017) was remarkable at 4.34 (2.33) in control group and 6.32 (2.08) in transplant group.

Contrary to previously published data no obvious differences were seen in acinar (Sacin) and conductive (Scond) ventilation heterogeneity, 0.215(0.325) vs 0.525(0.328) p=0.19 and 0.016(0.014) vs 0.023(0.054) p=0.27.

Moment ratio M1.M0 and M2.M0 were similar in both groups 1.81(0.48) vs 2.12(0.36) p=0.12 and 6.76(4.04) vs 8.63(3.01) p=0.11.

The patient who had developed pulmonary GvHD had the highest LCI, moment ratios and CnTO<sub>6</sub> of all study participants.

**Conclusions.** Lung function deterioration after allogeneic HSCT is not limited to GvHD and most patients experience lung function deterioration after HSCT even without pulmonary GvHD.

**Keywords:** allogeneic hematopoietic stem cell transplantation, lung clearance index, nitrogen multiple breath washout