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| **Reduced capillary blood volume drives functional oxygen desaturation in IPF** |
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| **Introduction/Aim:** DLCO is reduced in patients with idiopathic pulmonary fibrosis (IPF) and is one parameter used to grade disease severity. It is related to symptoms such as dyspnoea, and outcomes including survival. DLCO is dependent on conductance of the alveolar-capillary membrane (DmCO) and pulmonary capillary blood volume (VC) acting in series. The aim of this study was to evaluate the relative contributions of each element to reduced DLCO in patients with IPF and to investigate any associations with functional outcomes as measured with 6MWT.**Method:** Patients with IPF attending for clinical review performed pulmonary function testing including spirometry, plethysmography, DLCO (MasterScreen, Jaeger, Hoechberg), combined DLNO/DLCO (Hyp’Air; Medisoft, Belgium) and 6MWT. Within-subject comparisons were made using paired t-tests. DLCO values were adjusted for Hb. Correlations between lung function and 6MWT parameters were sought using Pearson correlation. All values are mean ±SD expressed as percentage of reference values.

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| Subjects | 17 (14M) 59-83 yrs |
| FVC | 93±21% |
| TLC  | 79±16%, |
| DLCOadj | 60±15%, |
| DLNO  | 60±17% |
| DmCO | 75 ± 32%. |
| VC | 49 ± 16% |
| DLNO/DLCO ratio | 5.4±0.6. |

**Results:** Lung function results are presented in table 1. DmCO and VC were bothreduced however VC was reduced to a greater extent than DmCO (p<0.01). There were positive correlations between VC and TLC (r = 0.59, p = 0.02), minimum SpO2 during 6MWT (r = 0.71, p<0.01) and change in SpO2 during 6MWT (r=0.70, p<0.01). There were no correlations between DmCO and VC and these parameters.**Table 1:** Lung function results**Conclusion:** Reduction in pulmonary capillary blood volume contributes more than abnormal membrane conductance to the reduced gas diffusion in IPF. Pulmonary capillary blood volume is related to functional indicators of disease severity not seen with DmCO or DLCO. This in agreement with the concept of vascular involvement in IPF.**Key Words:** diffusing capacity, idiopathic pulmonary fibrosis, 6MWT**Nomination for New Investigator Award:** No**Grant Support:** Applied for ASM Grant |