European Respiratory Society
Annual Congress 2012

Abstract Number: 273

Publication Number: 4724

Abstract Group: 1.4. Interventional Pulmonology

Keyword 1: COPD - management **Keyword 2:** Bronchoscopy **Keyword 3:** Experimental approaches

Title: The influence of emphysema heterogeneity on the magnitude of benefit following endoscopic thermal vapor ablation (InterVapor™) in patients with heterogeneous emphysema

Dr. Felix J.F. 1468 Herth felix.herth@thoraxklinik-heidelberg.de MD [1], Dr. Armin 1469 Ernst armin.ernst@steward.org MD [2], Dr. Peter 1470 Hopkins Peter_Hopkins@health.qld.gov.au MD [3], Dr. Jim J. 1471 Egan jegan@mater.ie MD [4], Dr. Franz 1472 Stanzel franz.stanzel@lkhemer.de MD [5], Dr. Arschang 1473 Valipour arschang.valipour@wienkav.at MD [6], Dr. Manfred 1474 Wagner manfred.wagner@klinikum-nuernberg.de MD [7], Dr. Christian 1475 Witt christian.witt@charite.de MD [8], Dr. Kim 1476 Baker kimberly-baker@uiowa.edu MD [9], Dr. Mark H. 1477 Gotfried mgotfried@aol.com MD [10], Dr. Steven 1478 Kesten skesten@uptakemedical.com MD [11] and Dr. Gregory 1479 Snell g.snell@alfred.org.au MD [12]. [1] Pneumology and Critical Care Medicine, Thoraxklinik Heidelberg, Germany ; [2] Pulmonary, Critical Care and Sleep Medicine, St. Elizabeth's Medical Center, Boston, United States ; [3] Lung Transplant Unit, Prince Charles Hospital, Chermside, Australia ; [4] Advanced Lung Disease Program, Mater Misericordiae University Hospital, Chermside, Australia ; [5] Zentrum für Pneumologie, Lungenklinik Hemer, Nordrhein Westfalen, Germany ; [6] Ludwig-Boltzmann Institute for COPD and Respiratory Epidemiology, Otto-Wagner Hospital, Vienna, Austria ; [7] Pneumologie, Klinikum Nürnberg, Germany ; [8] Pneumology, Charité University Medicine, Berlin, Germany ; [9] Pulmonary and Critical Care Medicine, University of Iowa, Iowa City, United States ; [10] PACT, Pulmonary Associates, Phoenix, United States and [11] Allergy Immunology & Respiratory Medicine, The Alfred Hospital, Melbourne, Australia .

Body: Introduction: Endoscopic thermal vapor ablation (InterVapor™) has been demonstrated to induce lung volume reduction through the local delivery of heated water vapor to targeted lung segments. We examined patient subgroups based on emphysema heterogeneity for differential responses. Methods: Subgroup analysis from a single-arm trial of InterVapor (single upper lobe treatment at 10 cal/g of tissue) in patients with upper lobe predominant emphysema. Inclusion criteria: FEV_1 15%-45% predicted, RV>150%, TLC>100%, 6 minute walk distance (6MWD)>140 m, DLCO>20%. Primary efficacy endpoints: FEV_1 ≥12% or SGRQ ≥-4 units at 6 months. Secondary efficacy: lung volumes (body plethysmography, HRCT), mMRC dyspnea, and 6MWD. Endpoints were analyzed for associations (Pearson correlation) and categorized based on tertiles of heterogeneity index (HI) (lower to upper lobe tissue to air ratio from HRCT). Results: 44 patients received InterVapor. Demographics: 50% men, age 63 years, FEV_1 0.86 L (31% predicted), SGRQ 59 units, 6MWD 300 m. Results at 6 and 12 months (mean change from baseline):

	HI<1.45 (n=15)	HI 1.45 - ≤1.90 (n=15)	HI>1.90 (n=14)

	6 mo	12 mo	6 mo	12 mo	6 mo	12 mo
Lobar reduction (%)	34	31	44	44	66	59
RV (mL)	-203	-88	-311	-304	-753	-559
FEV1 (mL)	119	67	139	94	168	96
FEV1 (%Δ)	16	9	14	10	21	12
mMRC	-0.64	-0.67	-0.93	-0.54	-1.17	-1.36
6MWD (m)	34	2	65	19	40	36
SGRQ (units)	-15	-6	-13	-12	-14	-14

Conclusion: Efficacy from InterVapor for the treatment of heterogeneous emphysema appears to increase with increasing HI (i.e. upper lobe predominance). HI should be considered when projecting the magnitude of benefit after InterVapor.