In this study we have shown that quantitative chest pulmonary function and BODE index (Table 1).

Conclusion

Emphysema
Score -0.32 -0.42* -0.69* 0.31 0.04 -0.27 0.37*

Gas trapping
Score -0.50* -0.50* -0.68* 0.40* 0.02 -0.29 0.47*

%LAA -0.47* -0.42* -0.51* 0.49* 0.09 -0.32 0.48*

AWT-Pi10 -0.02 0.03 0.29 -0.02 0.06 0.07 -0.08

RVC856,-950 -0.61* -0.65* -0.55* 0.51* 0.15 -0.21 0.48*

Table 1: Table showing median values of MMPs

MMP-1 0.11 (0.14) 0.03 (0.06) 0.09
MMP-2 66.39 (66.41) 35.77 (27.34) 0.03
MMP-3 0.35 (0.63) 0.19 (0.22) 0.01
MMP-7 13.96 (41.40) 5.44 (12.95) 0.08
MMP-8 10.66 (17.93) 5.08 (22.10) 0.22
MMP-9 19.62 (14.31) 8.10 (17.69) 0.37

Background

Matrix metalloproteinases (MMPs) are a family of proteolytic enzymes involved in the normal physiological turnover of the pulmonary extracellular matrix. They have been implicated in animal models of emphysema. However, there have been conflicting results in human studies, largely due to the anatomical regional variability and heterogeneity of COPD not being taken into account. This study aims to understand the role of MMPs in COPD by using CT analysis to guide regional bronchoalveolar lavage (BAL) and employing multiplex profiling of this fluid.

Methods

Twelve mild-to-moderate COPD patients (FEV1/FVC ratio <0.7, FEV1 >50%) underwent high resolution spiral chest CT. This was reported by a thoracic radiologist and lobes with most and least evidence of disease (emphysema or bronchial wall thickening) were identified. During bronchoscopy 100 mL of saline was instilled into each of these lobes and the BAL was collected. This fluid was filtered and then concentrated 2-fold by lyophilisation. MMP-1, -2, -3, -7, -8 and -9 were measured using a multiplex ELISA. Sample protein concentration was determined using a Bradford assay. MMP concentration was corrected for BAL protein concentration.

Results

MMPs and protein were successfully detected in BAL. Median values for MMP-1, -2, -3, -7, -8 and -9 were all increased in the diseased lobe compared to the relatively preserved lobe. This was significant for MMP-2 and -3 and trended towards significance for MMP-1 and -7 (Table 1).

Conclusion

These results suggest that certain MMPs are present in greater quantities in areas of the lungs most affected by COPD, adding to the evidence that they may be involved in the pathogenesis of the disease. This study also demonstrates the regional anatomical variability of COPD in respect to imaging abnormalities and the underlying disease processes. Regional sampling needs to be considered in future studies to enable full understanding of the heterogeneous pathological mechanisms involved in COPD.

Poster sessions

Abstract P62 Table 1

<table>
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<tr>
<th>FEV1 (%)</th>
<th>Log FEF 25–75 (%)</th>
<th>TLCO (%)</th>
<th>RV (%)</th>
<th>mMRC Score</th>
<th>6MWD</th>
<th>BODE index</th>
<th>%LAA</th>
<th>AWT-Pi10</th>
<th>RVC856,-950</th>
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<td>-0.32</td>
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<td>0.04</td>
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EVALUATION OF SALIVA BIOMARKERS AS INDICATORS OF HEALTH STATUS AND EXACERBATIONS IN COPD

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Background

Saliva is increasingly promoted as a suitable alternative diagnostic bio-sample to blood, yet its role in respiratory disease is still to be elucidated.