ASSESSMENT OF THE POTENTIAL UTILITY OF ALVEOLAR VOLUME (VA) AS A SUROGATE FOR TOTAL LUNG CAPACITY (TLC)

CATEGORY B

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Intro/Background

Patients with chronic lung diseases such as COPD and ILD have routine lung function testing. These tests include spirometry, diffusing capacity and lung volume measurements, which can be time consuming. Measurement of TLC may detect restriction in patients with pulmonary fibrosis(1) and hyperinflation in patients with COPD VA may be a suitable surrogate for TLC, however airways disease reduces ventilation which cause limitations.

Aims/Objectives

To determine whether the measurement of lung volumes is necessary in patients with chronic lung disease, by comparing measurements of VA and TLC in two different disease groups.

Methods

51 patients with pulmonary fibrosis and 208 with COPD underwent full lung function testing; lung volumes measured by helium dilution and carbon monoxide diffusing capacity calculated using the Jones Meade single breath method. All tests were preformed according to ARTP/BTS Guidelines(2).

VA and TLC were compared using Pearson correlation and Bland Altman analysis.

Results

Pulmonary fibrosis: VA correlated with TLC (r = 0.98, p<0.0001). There was no difference between TLC and VA (mean = 0.31L SE+/0.03 p = 0.99) and did not correlate with FEV1% predicted (r = 0.0532, p = 0.714).

COPD: VA correlated with TLC (r = 0.90, p<0.0001) but the difference (mean=1.40L SE+/0.149) was significant (p = 0.015) and correlated with FEV1% predicted (r = -0.51, p<0.0001).
**Conclusion**

VA may be a suitable surrogate for TLC in patients with pulmonary fibrosis but not in COPD as there is a significant difference between the measurements in COPD.

**References**


Is this a pilot study?

NO

Does this study use human subjects, human biopsy specimens or genetic material?*

NO

*If YES, please provide evidence that ethics committee approval has been obtained, where necessary.