Author's response to reviews

Title: Determination of regional lung air volume distribution at mid-tidal breathing from computed tomography: a retrospective study of normal variability and reproducibility

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Author's response to reviews: see over
Dear Sir

We would like to submit our paper entitled ‘Determination of regional lung air volume distribution at mid-tidal breathing from computed tomography: a retrospective study of normal variability and reproducibility’ for consideration for publication in Pulmonary Medicine as a research article. It relates to the use of computed tomography, which has applications across the range of lung diseases. We believe this work introduces some novel concepts and results into the use of CT in respiratory disease:

(i) providing quantitative values of lung air volume and its regional distribution at mid tidal breathing
(ii) the intra-subject reproducibility of lung air volume parameters at mid-tidal breathing
(iii) description and novel analysis of the three dimensional variation of fractional air volume concentration (approximately (1-density))
(iv) demonstration of the correlation between fractional air volume concentration and space volume of the lung. We believe that this result has important implications on the use of CT in respiratory research and clinical practice.

We would like to point out that the work described in this manuscript is a by-product of a project carried out for a different purpose i.e. to provide experimental data on regional aerosol deposition for use in validating computer models. This means that not all aspects of the methodology are optimised e.g. erect measurements of FRC from helium dilution are compared to supine measurements from CT. Nevertheless we believe that important new methods and results are presented in this paper that make it a useful contribution to this area of research.

Thank you for your consideration of this manuscript.

Yours sincerely,

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