Reviewer’s report

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

Version: 2 Date: 24 April 2014

Reviewer: Arnaud Bourdin

Reviewer’s report:

In this study, regional lung air volume distribution assessed using CT were studied in eleven healthy subjects. The method, variability and reproducibility were described. Basically, fractional air volume concentration (FAVC) was greater in the right lung and in the periphery of the lung, while variations remained low.

The method is interesting and well described and correctly assessed. Extensions to pathologic lungs are easily seen and these reference data are of interest.

Comments
1. Please describe subjects’ characteristics including pulmonary function tests.
2. Please comment and justify the number of subjects included
3. A spirometry coupled to the CT might have improve the confidence in the reliability of the method as 4 minutes were required.
4. The observed correlation between total air volume and FRC is interesting but insufficiently discussed. The importance of transposing these findings to non invasive measurements is of clinical relevance.
5. Repeatability might benefit from Bland & Altman’s graphical presentation.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests' below