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: 29 April 2014

Reviewer: sebastien bommart

Reviewer's report:

Minor essential revisions

General comments

These study aims to determine lung air volume at low dose CT. Authors describe the lung volume and fractional air concentration in normal healthy male subjects. This paper is well written and the purpose is interesting. Some points could be corrected. Statistics should more clearly define in the method.

Specific comments

Background

Please rephrase: « X-ray computed tomography is excellently suited to visualisation and accurate measurement of air volume in the airway tree and is being increasingly used for this purpose ». Indeed, chest Ct is able to assess lung volume but is not increasingly used for this purpose.

The role of lung air volume quantification is described in emphysema. It could also be discussed in small airway diseases.

The section concerning disadvantage of CT is too long and is discussed in the discussion section.

Methods

Acquisition of CT scan: The dose should be considered as a part of the results with mean and standard deviation.

The sentence “Some centres have devised complex algorithms with claims to be fully automatic” is a discussion point.

The statistics section should include the method use for repeatability and for correlations.

Discussion

The first sentence is a limit of the study and should be discussed at the end of the discussion section. The role of MRI for the lung air volume measurements instead of Ct could also be discussed here.
Competing interests

The specific role of « air liquide » for this study and the potential conflict of interest may be detailed.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

no competing interests