Individualized positive end-expiratory pressure and regional gas exchange in porcine lung injury

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**Supplemental Digital Content 4 - Computed Tomography scans**

Images from low-resolution computer tomography (transmission scan) that was obtained together with the radiation measurement during SPECT were used for densitometric analyses 1. The most cranial and most caudal CT slices displaying lung tissue and eight equidistant CT slices between them were selected 2,3. The internal and external boundaries of the lung were manually marked as previously described 4 using the OsiriX software (OsiriX© v5.5, Antoine Rosset, 2003-2013). Total lung volume (Vtotal ) and mass (Mtotal ) were calculated voxel-by-voxel from all lung voxels within the -1,000 to +100 Hounsfield units (HU) range. Volumes (%V) and masses (%M) of differently aerated lung compartments were calculated as percentage of Vtotal or Mtotal, respectively 2,3. The following HU ranges were used to define differently aerated lung compartments as previously reported 4

* non-aerated lung tissue with +100 HU ≥ HU ≥ CT > -100 HU
* poorly-aerated lung tissue with -100 HU ≥ CT > -500 HU
* normally-aerated lung tissue with ‑500 HU ≥ CT > -900 HU
* hyper-aerated lung tissue with -900 HU ≥ CT > -1000 HU

Calculation of lung volumes and mass was performed by extrapolation from 10 cranio-caudal reference CT slices, Extrapolation of quantitative CT data resulting from these 10 slices to the entire lung was performed as follows: mean values of each pair of consecutive slices were divided by nominal slice thickness and multiplied by the interval between the slice positions. All resulting products were summed up 2,3.

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