

Regional analysis with quantitative computed tomography after lung transplantation.

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Regional analysis with quantitative computed tomography (CT) of graft could be an attractive technique to interpret lung patterns after transplantation. Aim of this study was the definition of lung regional patterns in the early post-transplantation period. We prospectively collected the CT scans at end-expiration (EXP) and full-inspiration (INSP) of patients at 3 months after lung transplantation (LT). Lungs were segmented from both scans. INSP images were registered to EXP by optical flow to obtain maps of density variation (Δ HU) with pixel-by-pixel subtraction. We evaluated a classification of the pixels from maps of Δ HU in low ventilation (LV), consolidation (C), air trapping (AT) and healthy parenchyma (H). Patients who experienced uneventful early postoperative course after bilateral LT were enrolled. The figure shows the resulted composition of the parenchyma in 20 patients: LV=59.6 \pm 5.4%, C=1.7 \pm 0.4%, AT=0.06 \pm 0.05%, H=38.7 \pm 5.6%. To note that low ventilation pattern still affected the majority of lung tissue while consolidation and air trapping were negligible. Quantitative CT regional analysis may provide a significant advance in the interpretation of ventilation abnormalities after LT.

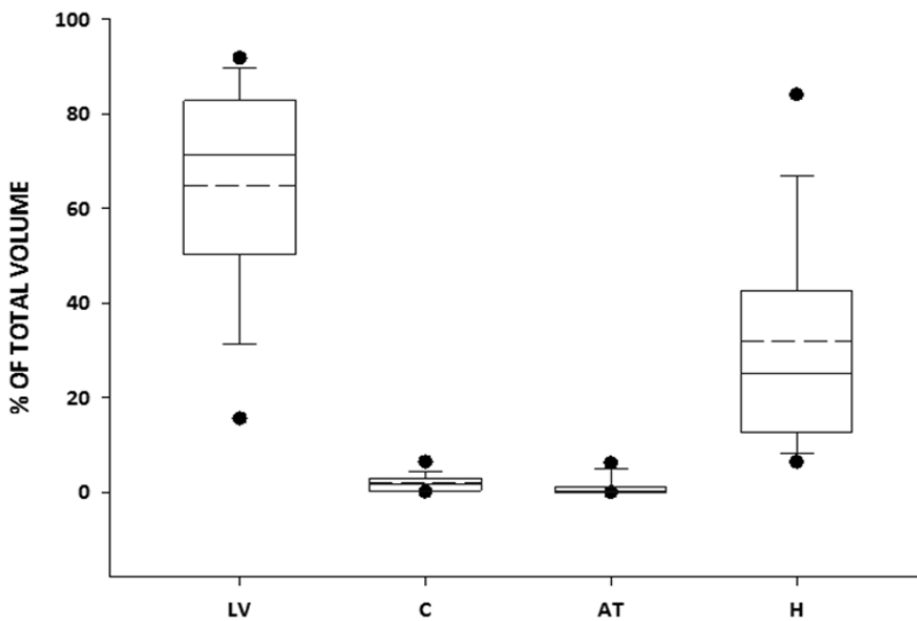


Figure 1. Relative volume of low ventilation (LV), consolidation (C), air trapping (AT) and healthy (H) regions in 20 patients.

Session:

From donor lung selection and organ preservation to lung transplant outcome (Poster Discussion)

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