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## PRIMARY GRAFT DYSFUNCTION AFTER LUNG TRANSPLANTATION INFLUENCES PARENCHYMAL REMODELING DETECTED BY MEAN QUANTITATIVE COMPUTED TOMOGRAPHY (CT)

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### Objectives:

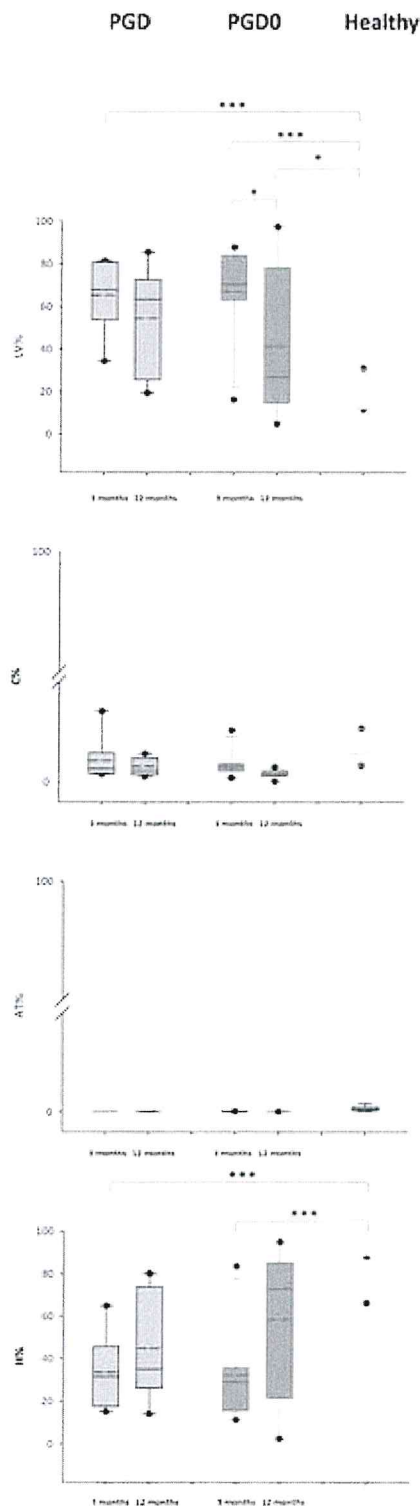
Despite technical progress has diminished the early postoperative mortality after lung transplantation, the incidence of primary graft dysfunction (PGD) remains significant; such syndrome is associated to poor early outcome as well as to impaired long-term survival. Its role in association with functional outcomes is less clear and the evolution of tissue damaged from the ischemia-reperfusion injury has only sporadically been studied. Regional analysis by computed tomography (CT) could be an attractive technique to interpret lung patterns after transplantation. In this study, we evaluate the application of CT functional mask derived parameters to determine whether development of severe (PGD) is associated with short and/or long term postoperative evidences of pulmonary function alterations.

### Methods:

We prospectively enrolled all patients who underwent bilateral lung transplantation at our Institution between June 2013 and February 2016. Patients were evaluated at 24, 48 and 72 hours after the end of surgery to establish PGD occurrence and grading. Patients without evidence of PGD constituted the PGD0 Group; patients with grade 2 and/or 3 composed the PGD Group. CT scans at 3 and 12 months after transplantation were analyzed to measure specific gas volume (SVg) changes normalized on expiratory SVgEXP of the whole lung (DSVg/SVgEXP) and to obtain functional masks of density variation ( $\Delta$ HU), namely maps of low ventilation, consolidation, air trapping and healthy parenchyma.

### Results:

Our main result was the evidence of a marked decrease in  $\Delta$ SVg/SVgEXP in all subjects, both at 3 and 12 months after lung transplantation, indicating a high degree of ventilation defects versus healthy subjects. Higher grades of PGD were associated to higher percentages of low ventilation while air trapping and consolidation were negligible (Figure).



**Conclusion:**

We demonstrate that quantification of ventilation defects by CT functional mask can offer insight into the correlation between PGD and pulmonary function after lung transplantation at short and mid-term.

**Disclosure:** No significant relationships.

**Keywords:** lung transplantation, PGD, functional CT.



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