Introduction: Lung donation occurs in a limited number of potential donors due to the deterioration of lung function after brain death and the strict eligibility criteria. “Protective” ventilator strategy markedly increased lung donation rate [1]. However, to our knowledge no studies have investigated individualization of PEEP and recruitment maneuvers in this setting. Thus, we explored the use of electrical impedance tomography (EIT) in a hypothesis-generating study.

Methods: Single center observational study. Potential lung donors underwent a 10 minutes evaluation by EIT (PulmoVista 500 Dräger Medical) after neurologic determination of death. Potential donors were ventilated with a "protective" protocol. Gas analysis and respiratory system compliance (Crs) were assessed. Two regions of interest were defined: non-dependent lung zones (ROI nond- dep) and dependent lung zones (ROI dep). We measure the Vt distending each region (VtROI nond-dep, VtROI dep); the heterogeneity of Vt distribution (VtH) and regional values of compliance (CrsROI nond-dep, CrsROI dep). Results are expressed as median (Q1; Q3).

Results: 5 subjects were enrolled. Vt was 7.4 (7.1; 7.7) ml/Kg IBW and PEEP was 8 (8; 8) cmH2O. PF ratio was 358 (47; 560) and Crs was 43 (35; 76) ml/cmH2O. Vt was preferentially distributed in non-dependent lung zones because of higher CrsROI nond-dep 26 (20; 43) ml/cmH2O vs. CrsROI dep 18 (13; 32). For clarity, VtROI nond-dep was 252 (196; 285) ml while VtROI dep was 166 (143; 197) ml and VtH was 1.35 (1.09; 2.02).

Conclusions: EIT monitoring showed that ventilation is preferentially distributed in ventral lung zones when the protective ventilator strategy is employed in potential organ donors. Next step will be to verify whether PEEP titration and recruitment maneuver based on EIT findings contribute to enhance respiratory performance and suitability for lung transplantation.

References