**Table S1.** Variation of electrical impedance tomography (EIT) indices during the scheduled oxygen therapy. Variables reported as mean ± SD. ΔEELI: values normalized to the baseline air-entrainment mask TIV; TIV: values expressed as the variation of tidal breath impedance indexed on the value during the baseline period with air-entrainment mask. ΔEELI, delta end-expiratory lung impedance; GI index, global inhomogeneity index; TIV, tidal impedance variation; RF, respiratory frequency; bpm, breaths per minute; HFNC, high flow nasal cannula; inc, increasing flow; dec, decreasing flow; CPAP, continuous positive airway pressure. \* different from baseline (Bonferroni-adjusted p-values < 0.05); ° different from HFNC 100 (Bonferroni-adjusted p-values< 0.05); § different from 10cmH2O CPAP (Bonferroni-adjusted p-values< 0.05).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Baseline | HFNC 40inc | HFNC 60inc | HFNC 80inc | HFNC 100 | HFNC 80dec | HFNC 60dec | HFNC 40dec | Washout | CPAP (10cmH2O) |
| ΔEELI | 0.0±0.0 | 1.0±1.0 | 1.2±1.3 | 1.8±1.6 | 1.9±1.4\* | 1.6±1.1\* | 1.8±1.1\* | 1.6±1.2\* | 1.2±1.1 | 2.7±1.5\* |
| GI index | 0.54±0.07 | 0.53±0.06 | 0.53±0.05° | 0.51±0.06 | 0.49±0.04 | 0.52±0.06 | 0.54±0.07° | 0.54±0.06°§ | 0.56±0.07§ | 0.48±0.05 |
| TIV | 1.0±0.0 | 1.2±0.3 | 1.3±0.4 | 1.4±0.7 | 1.6±0.9 | 1.5±0.8 | 1.6±0.9 | 1.3±0.8 | 1.2±0.5 | 1.7±0.4\* |
| RF (bpm) | 17.9±3.6 | 14.7±4.2 | 14.4±4.1\* | 14.4±3.4 | 13.3±3.3\* | 14.0±3.5\* | 14.5±3.6 | 15.5±4.2 | 16.2±4.5 | 14.6±4.2 |