**Online Supplement 9 - Table:** Segmental lung aeration distribution at different experimental conditions.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Lungs | **Healthy** | Median(IQR) | **Injured** | Median(IQR) | Lung injury | IAH | PEEP |
| IAH | BL | IAH | BL | IAH | Estimated difference(95% CI) | Estimated difference (95%CI) | Estimated difference (95% CI) |
| PEEP, cmH2O | 5 | 5 | 12 | 17 | 22 | 27 | 5 | 5 | 12 | 17 | 22 | 27 |
| **Overdistended** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ventral, % | 76 | 84 | 82 | 75 | 69 | 63 | 75 (71,80) | 76 | 86 | 82 | 77 | 72 | 66 | 77 (73,81) | 1.9 (0.2,3.6) \* | 10 (7.6,13) \* |  -0.9 (-1.1,-0.8) \* |
| Medial, % | 19 | 13 | 15 | 20 | 24 | 29 | 19 (16, 23) | 21 | 12 | 15 | 20 | 24 | 29 | 20 (17, 23) | 0.3 (-1.1,1.8) |  -7.9 (-10,-5.6) \* | 0.7 (0.6,0.8) \* |
| Dorsal, % | 5 | 3 | 4 | 5 | 7 | 8 | 5 (4,7) | 3 | 2 | 2 | 3 | 4 | 5 | 3 (2,4) |  -2.2 (-2.8,-1.7) \* |  -2.4 (-3.2,-1.5) \* | 0.2 (0.2,0.2) \* |
| **Normally aerated** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ventral, % | 22 | 24 | 22 | 20 | 19 | 19 | 21 (20, 22) | 26 | 29 | 25 | 24 | 22 | 21 | 25 (23, 26) | 3.7 (2.8,4.6) \* | 2.2 (0.8,3.6) \* |  -0.3 (-0.4,-0.3) \* |
| Medial, % | 44 | 52 | 48 | 47 | 46 | 45 | 47 (46, 48) | 51 | 57 | 55 | 53 | 52 | 51 | 53 (52, 55) | 6.4 (5.5,7.3) \* | 6.3 (5.0,7.7) \* |  -0.3 (-0.3,-0.2) \* |
| Dorsal, % | 34 | 24 | 30 | 33 | 34 | 36 | 33 (31, 34) | 22 | 14 | 19 | 23 | 26 | 29 | 22 (20, 24) |  -10 (-12,-8.7) \* |  -8.5 (-11,-6.3) \* | 0.6 (0.5,0.7) \* |
| **Poorly aerated** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ventral, % | 5 | 4 | 4 | 4 | 5 | 5 | 5 (4, 5) | 3 | 3 | 3 | 3 | 3 | 3 | 3 (3, 3) |  -1.3 (-1.7,-0.8) \* |  -0.6 (-1.3,0.1) | 0.0 (0.0-0.1) |
| Medial, % | 21 | 27 | 24 | 23 | 24 | 24 | 24 (23, 25) | 22 | 34 | 28 | 25 | 23 | 22 | 24 (22, 27) | 1.5 (-0.3,3.4) | 7.8 (4.9,11) \* |  -0.3 (-0.5,-0.2) \* |
| Dorsal, % | 73 | 68 | 72 | 73 | 71 | 70 | 72 (70, 73) | 75 | 62 | 69 | 72 | 74 | 75 | 73 (70, 75) |  -0.3 (-2.4,1.8) |  -7.1 (-11,-3.8) \* | 0.3 (0.2,0.5) \* |
| **Atelectatic** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ventral, % | 8 | 5 | 7 | 7 | 9 | 7 | 8 (7, 9) | 3 | 3 | 3 | 4 | 5 | 7 | 4 (3, 5) |  -3.5 (-4.9,-2.1) \* |  -1.3 (-3.5,0.9) | 0.2 (0.1,0.3) \* |
| Medial, % | 31 | 27 | 28 | 27 | 28 | 27 | 29 (29, 29) | 16 | 20 | 19 | 20 | 24 | 28 | 21 (20, 23) |  -7.3 (-9.8,-4.8) \* |  -0.1 (-4.0,3.8) | 0.2 (0.0,0.4) \* |
| Dorsal, % | 60 | 68 | 65 | 66 | 64 | 66 | 62 (61, 64) | 81 | 77 | 77 | 76 | 71 | 66 | 75 (71, 76) | 10.8 (7.2,14.4) \* | 1.4 (-4.3, 3.8) |  -0.4 (-0.7,-0.1) \* |
| **Total** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ventral, % | 21 | 17 | 18 | 19 | 19 | 20 | 19 (18, 20) | 20 | 17 | 18 | 19 | 19 | 19 | 19 (18, 20) |  -0.3 (-0.9,0.4) |  -3.2 (-4.2,-2.1) \* | 0.1 (0.1,0.2) \* |
| Medial, % | 40 | 42 | 41 | 41 | 42 | 42 | 41 (41, 42) | 40 | 41 | 42 | 42 | 43 | 43 | 42 (41, 43) | 0.4 (-0.2,1.1) | 1.0 (-0.1,2.1) | 0.1 (0.0,0.1) \* |
| Dorsal, % | 39 | 41 | 41 | 40 | 39 | 38 | 40 (39, 41) | 40 | 42 | 40 | 39 | 38 | 37 | 40 (38, 40) |  -0.2 (-0.2,-0.1) | 2.2 (1.0,3.3) \* |  -0.2 (-02,-0.1) \* |

End-expiratory lung aeration are shown. BL, baseline intra-abdominal pressure; IAH, intra-abdominal hypertension; PEEP, positive end-expiratory pressure. Distribution of the different aeration compartments (overdistended, normally aerated, poorly aerated and atelectatic lung) across the different lung segments is shown in %. Mixed linear regression was applied. \*; significance difference p<0.05.