Supplementary Table 1. Demographics and baseline characteristics of enrolled patients		
Age, years		63 [56-74]
Female sex	no. (%)	2 (10)
Height, cm		175 [171-180]
Predicted body weight, kg		70 [69-75]
Body mass index, kg/m^2		29 [26-32]
SOFA at study inclusion		4 [3-5]
SAPS II		37 [24-56]
Comorbidities	no. (%)	
Hypertension		10 (50)
Active cancer		1 (5)
Chronic obstructive pulmonary disease		1 (5)
Diabetes mellitus		5 (25)
Coronary artery disease		1 (5)
Noninvasive respiratory support before intubation	no. (%)	10 (50)
Duration of noninvasive respiratory support before intubation, hours		59 [20-72]
ARDS severity at enrollment	no. (%)	
Moderate (PaO_2/FiO_2 ratio 101-200 mmHg)		12 (60)
Severe (PaO_2/FiO_2 ratio ≤100 mmHg)		8 (40)
Clinical outcome		
Prone positioning during the ICU stay	no. (%)	20 (100)
Acute kidney failure	no. (%)	7 (35)
ICU-acquired infection	no. (%)	19 (95)
Pneumothorax	no. (%)	8 (40)
Tracheostomy	no. (%)	7 (35)
28-day outcome	no. (%)	
Dead		8 (40)
Alive, receiving mechanical ventilation		6 (30)
Alive, breathing unassisted		6 (30)
In-ICU mortality		9 (45)
Data expressed in median [interquartile range], if not otherwise specified.		

Supplementary table 2. Nonlinear fit of the relationship between R/I vs. PEEP.

For each patient the linear and quadratic regression coefficients are reported, together with the predicted PEEP level at which R/I decreases below 1.0 or 0.5: values of PEEP " > 20" indicate an ever-increasing recruitment with increasing PEEP. In the last column, the P-value corresponding to the Chi-square goodness-of-fit test is reported.

The table reports, for every patient (first column) the coefficients of the linear (second column) and of the quadratic (third column) terms of the nonlinear model. The PEEP levels at which R/I decreases below 0.5 (fourth column) or 1 (fifth column), where computable, are reported. The significance of a Chi-Square Goodness-of-Fit test on the model is reported in the sixth column: for subjects 8, 11 and 14 the test is significant, and the model must be considered inappropriate in representing the observations.

subject	b1	b2	PEEP@RI=0.5	PEEP@RI=1	P2DF
1	0.36	-0.01	> 20	> 20	0.770
2	0.47	-0.03	15.41	14.06	0.093
3	0.37	-0.02	17.89	16.10	0.096
4	0.67	-0.05	12.97	12.06	0.373
5	0.41	-0.03	13.65	11.94	0.091
6	0.62	-0.04	13.50	12.51	0.585
7	0.52	-0.04	13.08	11.81	0.155
8	0.13	0.00	> 20	> 20	0.042
9	0.20	-0.01	19.39	14.49	0.269
10	0.51	-0.03	14.71	13.48	0.101
11	-0.10	0.02	> 20	> 20	0.000
12	-0.01	0.01	> 20	> 20	0.056
13	-0.15	0.02	> 20	> 20	0.675
14	0.01	0.01	> 20	> 20	0.043
15	0.24	-0.02	12.16		0.545
16	-0.01	0.00	> 20	> 20	0.664
17	0.11	-0.01			0.303
18	0.02	0.00			0.948
19	0.00	0.00	> 20	> 20	0.379
20	0.01	0.00	> 20	> 20	0.705