

References

37. Yamamoto N, Miyashita T, Takaki S, et al. Effects of Breathing Pattern on Oxygen Delivery Via a Nasal or Pharyngeal Cannula. *Respir Care* 2015;60:1804-9.

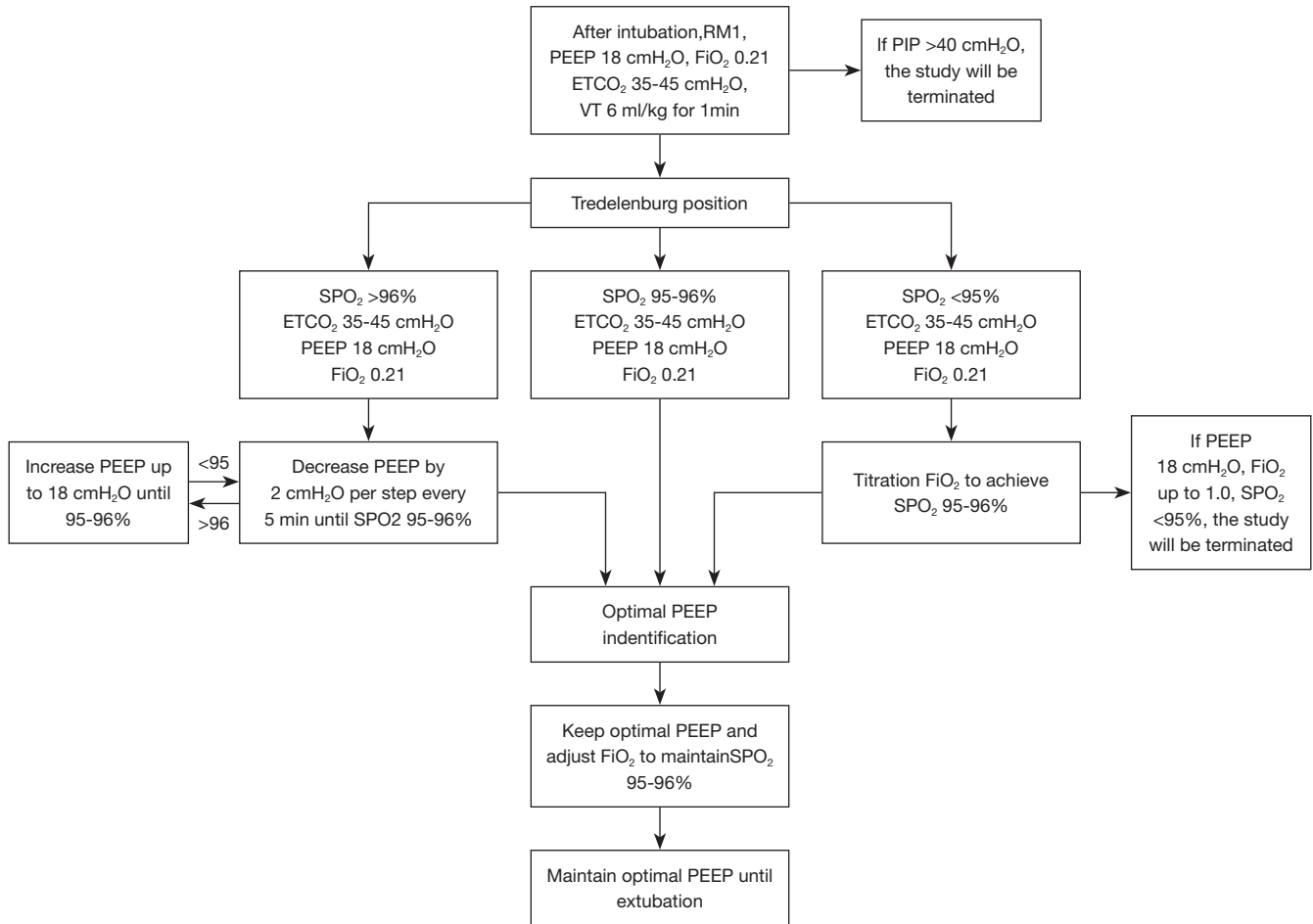


Figure S1 Titration process of optimal PEEP. RM, recruitment maneuver; PIP, peak inspiratory pressure; PEEP, positive end-expiratory pressure; ETCO₂, end-expiratory carbon dioxide partial pressure.

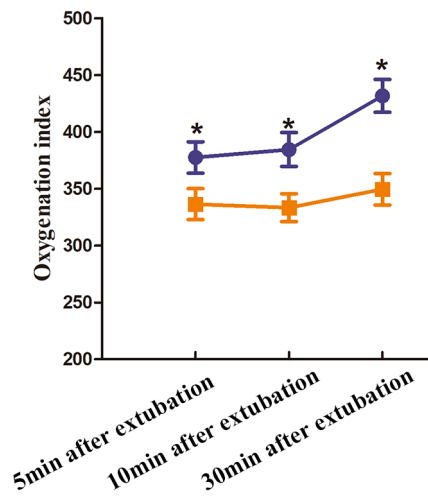


Figure S2 The $\text{PaO}_2/\text{FiO}_2$ at 3 different time points after extubation. The inspiratory oxygen fraction (FiO_2) with a nasal cannula after extubation was calculated as $0.21 + 4 \times$ the oxygen flow rate (37). Group C, control group with a fixed PEEP of 5 cmH_2O ; group O, optimized PEEP group with an individualized PEEP at which SpO_2 was maintained at 95–96% with minimal FiO_2 ; PEEP, positive end-expiratory pressure.

Table S1 Titration results for all enrolled patients

Group	Patient ID	Age (years)	BMI (kg/m ²)	Intraoperative optimal PEEP (cmH ₂ O)	Hypoxemia on room air in the PACU
Group O	1	68	23.4	18	
	2	78	25.6	10	
	3	69	23.3	16	
	4	75	26	16	
	5	60	22.9	2	
	6	74	24.4	14	
	7	55	23.6	18	
	8	68	20.8	18	
	9	60	24.1	6	
	10	63	23.9	16	
	11	75	21.3	18	
	12	69	25.3	16	
	13	56	23.5	18	
	14	61	25.7	16	
	15	66	24	16	
	16	75	21	18	
	17	64	24	12	
	18	60	28	14	Yes
	19	66	23.5	18	
	20	70	21	6	
	21	79	19.5	18	
	22	71	22.9	18	
	23	69	27.7	18	
Group C	1	83	23.1	16	
	2	72	22.6	18	
	3	67	23	18	
	4	74	23.5	12	
	5	57	24.1	16	Yes
	6	68	22.5	8	
	7	72	27.7	6	
	8	74	28.7	18	Yes
	9	67	23.1	16	Yes
	10	52	24.4	10	
	11	60	22.6	16	
	12	58	23.8	6	
	13	55	28.7	18	
	14	52	21.8	18	Yes
	15	67	22.4	12	
	16	62	25.7	16	Yes
	17	67	23	8	
	18	65	26.6	18	
	19	75	24.4	16	Yes
	20	64	27	18	
	21	76	22.5	12	Yes
	22	60	27	18	
	23	56	25.9	18	

Group C, control group with a fixed PEEP of 5cmH₂O; Group O, optimized PEEP group; BMI, body mass index; PEEP, positive end-expiratory pressure; PACU, postanesthesia care unit.

Table S2 Respiratory and blood parameters at 3 time points during mechanical ventilation

Parameter	Time point	Group C (n=23)	Group O (n=23)	P value
Tidal volume/PBW (mL/kg)	30 min after PEEP	6 (6–6)	6 (6–6)	–
	60 min after PEEP	6 (6–6)	6 (6–6)	–
	Pre-extubation	6 (6–6)	6 (6–6)	–
PEEP (cmH ₂ O)	30 min after PEEP	5 (5–5)	16 (12–18)	–
	60 min after PEEP	5 (5–5)	16 (12–18)	–
	Pre-extubation	5 (5–5)	16 (12–18)	–
Driving pressure (cmH ₂ O)	30 min after PEEP	15.0±0.7	13.7±0.5	0.12
	60 min after PEEP	15.3±0.4	14.0±0.6	0.05
	Pre-extubation	14.8±1.3	12.7±0.7	0.14
Respiratory rate (breaths/min)	30 min after PEEP	14.8±1.4	14.3±2.0	0.278
	60 min after PEEP	16.0±2.0	15.8±2.1	0.666
	Pre-extubation	16.0±1.8	15.3±2.2	0.316
Cdyn (mL/cmH ₂ O)	30 min after PEEP	32.1±1.5	37.9±1.5	0.009
	60 min after PEEP	29.7±1.1	37.2±2.0	0.001
	Pre-extubation	36.5±3.4	43.4±2.7	0.03
MAP (mmHg)	30 min after PEEP	79.1±12.3	80.1±10.3	0.768
	60 min after PEEP	77.3±11.9	82.4±6.1	0.079
	Pre-extubation	80.4±9.0	86.9±9.6	0.074
Heart rate (beat/min)	30 min after PEEP	64.0±6.1	63.3±8.9	0.744
	60 min after PEEP	65.2±8.8	60.8±9.7	0.118
	Pre-extubation	66.4±8.4	61.5±8.7	0.135
pH	30 min after PEEP	7.35±0.05	7.35±0.04	0.712
	60 min after PEEP	7.35±0.04	7.35±0.04	0.760
	Pre-extubation	7.36±0.06	7.36±0.04	0.339
PaCO ₂ (kPa)	30 min after PEEP	6.2±0.7	6.0±0.5	0.241
	60 min after PEEP	6.1±0.7	6.1±0.5	0.778
	Pre-extubation	6.0±0.9	5.8±0.5	0.504
PaO ₂ /FiO ₂ (kPa)	30 min after PEEP	59.7±2.4	72.9±4.0	0.007
	60 min after PEEP	56.8±3.2	69.0±2.7	0.005
	Pre-extubation	60.6±5.9	77.0±4.9	0.040
HCO ₃ ⁻ (mmol /L)	30 min after PEEP	25.8±2.5	25.2±2.2	0.431
	60 min after PEEP	25.3±2.3	25.4±2.2	0.959
	Pre-extubation	25.7±1.9	24.7±2.2	0.254
ABE (mmol/L)	30 min after PEEP	0.15±3.0	-0.33±2.6	0.584
	60 min after PEEP	-0.31±2.5	-0.24±2.5	0.922
	Pre-extubation	0.28±2.1	-0.77±2.6	0.295

Group C, control group with a fixed PEEP of 5 cmH₂O; Group O, optimized PEEP group; Data are presented as mean ± SD or median (interquartile range), and P values compare the 2 arms from a repeated-measures analysis of variance. PBW, predicted body weight; PEEP, positive end-expiratory pressure; Cdyn, dynamic compliance. MAP, mean arterial pressure; PaCO₂, partial pressure of carbon dioxide in arterial blood; PaO₂, partial pressure of oxygen in arterial blood; FiO₂, fraction of inspired oxygen; ABE, actual base excess; PEEP, positive end-expiratory pressure.