

The Influence of Different PEEP Levels After Recruitment Maneuvre on the Effect of Alveolar Recruitment Maintenance and Patients' Cardiac Function

Study Protocol

1. Demographic Data

Name: Gender: Age: Height(cm): Weight(kg):
 BMI: Hospitalization Number: Ward:
 Bed Number:

2. Clinical Data

Department:

Diagnosis:

Surgical Procedure Name:

ASA Classification:

Associated Underlying Conditions:

Duration of surgery (min) :

Intraoperative crystalloids (ml) :

Intraoperative colloids (ml) :

Intraoperative urine output (ml)

Intraoperative blood loss (ml) :

Intraoperative norepinephrine dose (ug) :

3. Study Implementation

Group A : PEEP=0 cmH₂O , Group B: PEEP=4 cmH₂O , Group C : PEEP=8 cmH₂O ,

Group D: PEEP=12 cmH₂O)

Patient admission	vital signs(SpO ₂ , NBP , HR),invasive arterial pressure monitoring
anesthesia induction	Pre-oxygenation was performed with pure oxygen for 3 minutes followed by endotracheal intubation
Endotracheal intubation	ventilation parameters: VT 6-8ml/kg , FiO ₂ 60% , PEEP 4 cmH ₂ O , I/E 1 : 2.
T0	baseline respiratory mechanics parameters (C _{dyn} , DP , low point inflection of P-V loop , Petco ₂ , P _{peak} , P _{plat}) , baseline hemodynamic variables (MAP , SV , PR , CO , CI)
ARM	ARM was performed at a pressure of 30 cmH ₂ O for 30 seconds. After ARM, immediately set different PEEP values according to group settings
T1	RM 1minDP , C _{dyn} , MAP , PR , SV , CO , CI
T2	RM 2minDP , C _{dyn} , MAP , PR , SV , CO , CI
T3	RM 3minDP , C _{dyn} , MAP , PR , SV , CO , CI
T4	RM 4minDP , C _{dyn} , MAP , PR , SV , CO , CI
T5	RM 5minDP , C _{dyn} , MAP , PR , SV , CO , CI
T6	RM 10minDP , C _{dyn} , MAP , PR , SV , CO , CI
T7	RM 15minDP , C _{dyn} , MAP , PR , SV , CO , CI
T8	RM 20minDP , C _{dyn} , MAP , PR , SV , CO , CI
T9	RM 25minDP , C _{dyn} , MAP , PR , SV , CO , CI
T10	RM 30minDP , C _{dyn} , MAP , PR , SV , CO , CI

T11	RM 35minDP 、 Cdyn 、 MAP 、 PR 、 SV 、 CO 、 CI
T12	RM 40minDP 、 Cdyn 、 MAP 、 PR 、 SV 、 CO 、 CI

2025.11.30

Statistical analysis was performed with SPSS v. 27.0. Data are expressed as number of events (percentage) or means \pm standard deviation, as appropriate. Intra-group comparison was performed using paired-sample t-test, and comparison among groups used one-way analysis of variance. Figures were prepared with GraphPad Prism (GraphPad Software, La Jolla, CA USA). $P < 0.05$ was considered as statistically significant.

	the time required for Cdyn to return to baseline after ARM:
	PEEP was adjusted to 4 cmH ₂ O and was maintained at this level until the end of surgery.