Carboxythracs at video-assisted thoracoscopy in patients with penetrating wounds of the chest

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Background and Goal of Study: The usage of CO₂ insufflation into the pleural cavity during the theranostic video-assisted thoracoscopy (VATS) can become an acknowledged alternative to dual-lumen separate bronchial intubation. The goal of study was to evaluate the efficiency and safety of surgically operated lung collapse using method of carboxythracs during VATS.

Materials and Methods: Within the survey the anaesthesia of 81 patients with hemopneumothorax caused by penetrating wounds of the chest was examined. The severity of the victims' condition, who are mostly working-age males (n=76) was due to the type of injury (gunshot (n=4) or stab and slash wound (n=77)) and blood loss.

Middle hemothorax (corresponds to IV ASA) was detected in 51 patients and small hemothorax (III ASA) - in 30 patients.

In the first group (n=56) was implemented the tracheal intubation with the usage of single-tube and CO₂ was insufflated into the pleural cavity with p = 2-4 mm Hg during the endosurgical stage.

In the second group (n=25) was used separate bronchial intubation with unipulmonary ventilation.

All patients underwent VATS (33,4 + 3,8 min.) under intravenous anaesthesia with the use of benzodiazepines, barbiturates or ketamine, opioids and muscle relaxants.

Results and Discussion: During surgery the condition of patients in both groups remained stabile at all stages, which was confirmed by breath data and hemodynamics parameters, by pH and acid-base balance of arterial blood. Patients with significant chest organs damage and heavy blood loss (n=11) were transferred to the intensive care unit (ICU) on prolonged mechanical ventilation where they stayed up to 3 days. The majority of patients (n=74) were transferred from the ICU to the surgical department during the first 24 hours after surgery, the others (n=7) - on the 3rd-4th day. Lung expansion after VATS did not depend on the method of its collapse. All patients were dismissed from

Conclusions: CO₂ insufflation into the pleural cavity provides rapid and adequate lung collapse and can be an alternative to the use of dual-lumen tube during emergency VATS in patients with chest injuries. This is paticularly important for anaesthesiologists in urgent thoracic surgery, who are able to implement in practice different methods of artificial lung collapse.

Stages	Mean blood pressure	Heart rate	SatO ₂	PetCO ₂	pH	PaO ₂	PaCO ₂
DELIVERY TO OPERATION ROOM	83,9±2,8	103,7±3,2	94,8±0,6	37,4±0,8	7,39±0,02	157,0±20,3	37,6±1,4
INTUBATION	79,1±3,2	102,4±2,6	97,3±0,4	36,0±0,5	7,37±0,02	216,0±18,8	39,9±1,3
INSUFFLATION CO ₂	83,0±2,7	99,7±2,1	97,3±0,2	36,1±0,4	7,34±0,03	148,0±11,0	38,0±1,5
DESUFFLATION CO ₂	89,9±1,5	95,8±2,0	97,5±0,2	35,4±0,4	7,35±0,02	175,3±19,9	40,6±1,5
TRANSPORTATION TO ICU	93,1±1,8	93,4±1,9	97,6±0,2	35,2±0,3	7,38±0,01	178,2±17,0	39,1±1,7

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