**PREOPERATIVE ASSESSMENT**

 **CONFIDENTIAL**



**Case Report Form**

**version 1.8**

Protective Ventilation with Higher versus Lower PEEP during one-lung ventilation for thoracic surgery

**Patient Serial Number** |\_\_|\_\_|\_\_**|**\_\_|\_\_|\_\_|

 c e n t e r p a t i e n t

**Date of preoperative assessment \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Local investigator 1 (intraoperative) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Local investigator 2 (postoperative) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Principal Investigator: Mert Sentürk, Department of Anesthesiology and Reanimation, Istanbul University, Turkey**

**Contact: Jakob Wittenstein, Department of Anesthesiology and Intensive Care Medicine, University of Dresden, Germany; jakob.wittenstein@ukdd.de**

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# 0. General comments

For all scores, definitions and abbreviations refer to the appendix at the end of the document.

The use of neuromuscular monitoring during general anaesthesia is strongly recommended.

A standardized CPAP device with pressure limitation up to 20 cmH2O is necessary for the study.

All calculations are based on measured bodyweight, except for tidal volume, which is based on ideal bodyweight (IBW).

# 1. Inclusion Criteria

|  |  |  |
| --- | --- | --- |
|  | **yes** | **no** |
| patient scheduled for open thoracic or video-assisted thoracoscopic surgery under general anesthesia requiring OLV | 🞎 | 🞎 |
| BMI < 35 kg/m2 | 🞎 | 🞎 |
| age ≥ 18 years | 🞎 | 🞎 |
| expected duration of surgery > 60 min | 🞎 | 🞎 |
| most of ventilation time during surgery expected to be in OLV | 🞎 | 🞎 |
| planned lung separation with double lumen tube (DLT, not for study purpose only) | 🞎 | 🞎 |

# 2. Exclusion Criteria

|  |  |  |
| --- | --- | --- |
|  | **yes** | **no** |
| COPD GOLD Grade III and IV, lung fibrosis, documented bullae, severe emphysema, pneumothorax (for this study, pneumothorax at the operated side will not be considered) | 🞎 | 🞎 |
| uncontrolled asthma | 🞎 | 🞎 |
| Heart failure NYHA Grade 3 and 4, Coronary Heart Disease CCS Grade 3 and 4 | 🞎 | 🞎 |
| previous lung surgery | 🞎 | 🞎 |
| documented pulmonary arterial hypertension >25mmHg MPAP at rest or > 40 mmHg syst. (estimated by ultrasound) | 🞎 | 🞎 |
| documented or suspected neuromuscular disease (thymoma, myasthenia, myopathies, muscular dystrophies, others) | 🞎 | 🞎 |
| planned mechanical ventilation after surgery | 🞎 | 🞎 |
| bilateral procedures | 🞎 | 🞎 |
| lung separation with other method than DLT (e.g. difficult airway, tracheostomy) | 🞎 | 🞎 |
| surgery in prone position | 🞎 | 🞎 |
| persistent hemodynamic instability, intractable shock | 🞎 | 🞎 |
| intracranial injury or tumor | 🞎 | 🞎 |
| enrollment in other interventional study or refusal of informed consent | 🞎 | 🞎 |
| pregnancy (excluded by anamnesis and/or laboratory analysis) | 🞎 | 🞎 |
| esophagectomy, pleural surgery only, sympathectomy surgery only, chest wall surgery only, mediastinal surgery only, lung transplantation | 🞎 | 🞎 |
| presence of one of the adverse events, listed as postoperative pulmonary complications(aspiration, moderate respiratory failure, severe respiratory failure, infiltrates, pulmonary infection, atelectasis, cardiopulmonary edema, pleural effusion, pneumothorax, pulmonary embolism, purulent pleuritis, lung hemorrhage)for this study, pneumothorax at the operated side will not be considered as a PPC | 🞎 | 🞎 |
| documented preoperative hypercapnia > 45mmHg (6kPa) | 🞎 | 🞎 |
|  |  |  |
| **Patient included in the study?** | 🞎 | 🞎 |

**Patient details**

|  |  |  |  |
| --- | --- | --- | --- |
| Written informed consent | yes 🞎 no 🞎 | Date informed consent signed |  dd / mm / yyyy |
| Age [yrs] |  | Gender  | male 🞎 female 🞎 |
| Height [cm] |  | Weight [kg] |  |

# 3. ARISCAT Score

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Points** | **Points** | **Points** |
| Age [years] | ≤ 50 | 🞎 | 0 | 51-80 | 🞎 | 3 | > 80 | 🞎 | 16 |
| Preoperative SpO2 [%] 10 min in room air, supine position, upper body elevated 30-45°  | ≥ 96 | 🞎 | 0 | 91-95 | 🞎 | 8 | ≤ 90 | 🞎 | 24 |
| Respiratory Infection (last month) | No | 🞎 | 0 | Yes | 🞎 | 17 |  |  |  |
| Preoperative Anemia (Hb ≤ 6,2 mmol/l or ≤10 g/dl) | No | 🞎 | 0 | Yes | 🞎 | 11 |  |  |  |
| Emergency procedure | No | 🞎 | 0 | Yes | 🞎 | 8 |  |  |  |
| Surgical Incision | peripheral | 🞎 | 0 | upper abdominal | 🞎 | 15 | thoracic | 🞎 | 24 |
| Planned duration of surgery [hr] | <2 | 🞎 | 0 | > 2-3 | 🞎 | 16 | > 3 | 🞎 | 23 |
| **Total Risk Score** | 🞎 ++ | 🞎 ++ | 🞎 | =  |

# 4 History of previous disease

|  |  |
| --- | --- |
| ASA Score [1-5] |  |
| Cumulated Ambulation Score [0-6]: |
| Metabolic equivalents | <4  🞎 ≥4  🞎 |
| Heart failure  | yes 🞎 no 🞎 | if yes  | NYHA Score [1-4]: |
| Coronary heart disease | yes 🞎 no 🞎 | if yes  | CCS Score [0-4]: |
| Atrial flutter / fibrillation | yes 🞎 no 🞎 | if yes  | acute(duration <4 weeks) 🞎 paroxysmal 🞎 chronic 🞎 |
| Obstructive sleep apnea | yes 🞎 no 🞎 | if yes | Apnea/Hypopnea Index [events/hr]: |
|  |  | if no | STOP-Bang Score [0-8]: |
| COPD | yes 🞎 no 🞎 | if yes  | steroids use | yes 🞎 no 🞎 |
|  |  |  | inhalation therapy | yes 🞎 no 🞎 |
| Respiratory infection within last month | yes 🞎 no 🞎 | if yes  | upper 🞎 lower 🞎respiratory infection |
| Smoking status | never 🞎 former (cessation >3months) 🞎 current 🞎 |
| Use of noninvasive ventilatory support | yes 🞎 no 🞎 | if yes  | CPAP 🞎 NPPV 🞎 |
|  |  |  | duration [hrs/day]:  | intensity [pressure level]:  |
| Active cancer | yes 🞎 no 🞎 | if yes  | cancer type: |
|  |  |  | actual cancer classification: T\_\_\_N\_\_\_M\_\_\_ |
| Diabetes mellitus | yes 🞎 no 🞎 | if yes  | dietary 🞎 oral medication 🞎 insulin 🞎 |
| Arterial hypertension | yes 🞎 no 🞎 |  |  |  |
| Gastroesophageal reflux | yes 🞎 no 🞎 | if yes  | events ≥1/day 🞎 ≥1/week 🞎 ≥1/month 🞎 |
| Alcohol status (past 2 weeks) | 0-2 drinks/day 🞎 >2 drinks/day 🞎 |
| Use of antibiotics (last 3 months) | yes 🞎 no 🞎 | if yes  | indication: drug name: |  |
| Use of statins | yes 🞎 no 🞎 | if yes  | drug name: | dose [mg/day]: |
| Use of aspirin | yes 🞎 no 🞎 | if yes  | dose [mg/day]: |  |

# 5 Actual organ function

|  |  |  |  |
| --- | --- | --- | --- |
| SpO2 supine position, upper body elevated 30-45°, 10 min in room air possible? | yes 🞎 no 🞎 | if yes  | SpO2 [%]: |
|  |  | if no  | SpO2 [%]: | **and** FiO2 [%]: |
| RR [/min] |
| HR [/min] | ABP mean [mmHg] |
| Temperature [°C] | tympanic 🞎 axillar 🞎 inguinal 🞎 oral 🞎 rectal 🞎 |
|  | other 🞎 | if other specify: |
| Airway secretion | yes 🞎 no 🞎 | if yes | purulent/yellow colour 🞎 not purulent 🞎 |
| VAS dyspnea [1-10cm] | VAS thoracic rest pain [1-10cm] |
|  | VAS coughing pain [1-10cm] |

# 6 Non-mandatory measurements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Laboratory tests** |  |  |
| **Chest X-ray** obtained | yes 🞎 no 🞎 | Hb | mmol/l 🞎 | g/dl 🞎 |
| if yes  |  | Hematocrit | % |  |
| Infiltrates (any side) | yes 🞎 no 🞎 | WBC  | GPt/L |  |
| pleural effusion (any side) | yes 🞎 no 🞎 | Platelets | GPt/L |  |
|  |  | INR |  |  |
| Atelectasis (any side) | yes 🞎 no 🞎 | PTT | sec |  |
| Pneumothorax (any side) | yes 🞎 no 🞎 | Creatinine | µmol/l 🞎 | mg/dl 🞎 |
| cardiopulmonary edema(any side) | yes 🞎 no 🞎 | BUN | mmol/l 🞎 | mg/dl 🞎 |
|  |  | ALT | µmol/s\*l 🞎 | U/L 🞎 |
|  |  | AST | µmol/s\*l 🞎 | U/L 🞎 |
|  |  | Bilirubin | µmol/l 🞎 | mg/dl 🞎 |
|  |  | CRP c-reactive protein | mg/l |  |
|  |  | Procalcitonin | ng/ml |  |

# 7 Preoperative lung variables

|  |  |
| --- | --- |
| pO2 (arterial partial pressure of oxygen) [mmHg/kPa]: | capillary🞎arterial🞎 |
| pCO2 (arterial partial pressure of carbon dioxide) [mmHg/kPa]: | capillary🞎arterial🞎 |
| pH (pH value) : |  |
| FVC (forced vital capacity) [Liters] : |  |
| FEV1 (Forced expiratory volume at 1 second) [Liters] : |  |
| FEV1/FVC (Tiffeneau) [%] : |  |
| TLC (Total lung capacity) [Liters] : |  |
| DLCO (Diffusing capacity for carbon monoxide)  | [mmol/min/kPa]🞎[ml/min/mmHg] 🞎 |
| VO2max (maximal oxygen consumption) [ml/kg/min] |  |

|  |  |
| --- | --- |
| Predicted postoperative respiratory function | predicted postoperative (ppo) FVCpredicted postoperative (ppo) FEV1predicted postoperative (ppo) DLCO |