**Intra–abdominal Pressure Targeted PEEP During Laparoscopic Surgery – an open–label non–randomized, crossover, clinical trial.**

SUPPLEMENTARY DIGITAL CONTENT

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**eMethods**

*Recruitment maneuver*

We applied throughout the study sequence the same recruitment maneuver used in a previous clinical trial:2

* Set peak inspiratory pressure limit at 45 cmH2O
* Keep the tidal volume at 7 ml∙kg-1 of predicted body weight, PEEP at 12 cmH2O and inspiration: expiration time unchanged
* Set respiraotory rate (RR) to 6–8 breaths/min, or lowest RR that ventilator allows
* Increase tidal volume in steps of 4 ml/kg of PBW, continue until plateau pressure = 30–35 cmH2O, and hold mechanical ventilation settings for three breaths.
* Set RR and tidal volume back to values preceding the recruitment maneuver and set PEEP according to the steps of the sequence

*Stepwise sequence of* ***Intra–abdominal pressure*** *and PEEP levels*

Each patient was subjected to three **intra–abdominal pressure** steps in a strict sequence (**Figure 1S**) always before the start of the surgical intervention as follows:

* **Baseline (B)** Before peritoneal insufflation baseline airway and esophageal pressure were obtained at PEEP 5 cmH2O (standard regime).
* **Low Intra–abdominal pressure – Standard PEEP step**. **intra–abdominal pressure** was lowered to 8 mmHg. A recruitment maneuver was performed after which a standard PEEP regime was applied.
* **Low Intra–abdominal pressure – Targeted PEEP step**. After a new **recruitment maneuver**, PEEP was set at 10 cmH2O for 2 minutes to let pressure stabilize.

After setting back PEEP at 5 cm H2O for 2 minutes and then:

* **Intermediate Intra–abdominal pressure – Standard PEEP step**. **intra–abdominal pressure** was increased to 12 mmHg. Then a **recruitment maneuver** was performed, and standard PEEP regime was applied afterward.
* **Intermediate Intra–abdominal pressure – Targeted PEEP PEEP step**. The recruitment maneuver was repeated, and PEEP was set at 2 cmH2O above **intra–abdominal pressure** for 2 minutes.

PEEP was set back at 5 cmH2O for 2 minutes and then:

* **High Intra–abdominal pressure – Standard PEEP step**. **intra–abdominal pressure** was increased to 15 mmHg, and then a **recruitment maneuver** war performed.
* **High Intra–abdominal pressure – Targeted PEEP PEEP step**. The recruitment maneuver was repeated, and PEEP was set at 2 cmH2O above **intra–abdominal pressure** for 2 minutes.

After completing the sequence, PEEP and **Intra–abdominal pressure** were set as per surgical team preferences to perform the surgery.

All pressures were recorded using a transducer connected to the ventilator tubing directly before the Y piece and the esophageal catheter monitor (FluxMed GrE, MBMED, Buenos Aires, Argentina) and converted digitally using dedicated software (FluxView, MBMED, Buenos Aires, Argentina).

**REFERENCES**

1. The PROVE Network Investigators, for the Clinical Network of the European Society of Anaesthesiology. High versus low positive end-expiratory pressure during general anaesthesia for open abdominal surgery (PROVHILO trial): A multicentre randomised controlled trial. *Lancet* 2014; 384: 495–503.