

# Esophageal balloon calibration for esophageal pressure evaluation during robotic uro-gynecological surgery

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Argomento: Insufficienza respiratoria acuta e ventilazione meccanica

**INTRODUCTION:** The esophageal balloon calibration (Ebc) has been proposed by Mojoli et al to evaluate the accuracy of esophageal pressure (Pes) measurement both in vitro and in clinical setting.[1, 2]

**OBJECTIVES:** The study aim was to investigate feasibility of Ebc during robotic uro-gynecological surgeries with application of trendelenburg position (tp), pneumoperitoneum (pp), and positive end-expiratory pressure (Peep). Furthermore, during whole study period, were evaluated inspiratory (PesI) and expiratory (PesE) Pes and related swings at 3 different filling volume of esophageal balloon: volume associated with the largest tidal increase of Pes (Vbest), Vbest corrected to esophageal wall pressure (VbestC), and volume suggested by the manufactures, 4ml (V4).

**METHODS:** A catheter with esophageal and gastric balloons was inserted 13 elective patients undergoing volume controlled mechanical ventilation for robotic uro-gynecological surgery. PesI and PesE and related swings were recorded and computed at Vbest, VbestC, and V4 over study period (T0: before start surgery; T1: pneumoperitoneum + trendelenburg position application; T2 and T3: 20 and 60 minutes from peep application; T4: end surgery). Furthermore, Vbest trend was post hoc analyzed at the same steps.

**RESULTS:** Ebc was successfully applied in all patients enrolled. PesE at Vbest and VBestC was lower than PesE at V4 during all study steps ( $P < 0,05$ ). PesI both at VBest and VbestC were significantly smaller with respect V4 ( $p < 0,05$ ). Swing was not different between the 3 filling volumes. Vbest was higher at T2 and T3 than at T0 ( $p < 0,05$ ).

**CONCLUSION:** Ebc is feasible in patients undergoing robotic uro-gynecological surgery. Finally, reliability of Pes measurement is improved by Ebc, confirming Mojoli findings also in operating room.[2]

## REFERENCES

1. Mojoli F. et al (2015) Minerva Anestesiol 81:855-864.

2. Mojoli F. et al (2016) Crit Care 20:98.