Effects on oxygenation of esophageal driven ventilation during uro-gynecological robotic surgery: preliminary data

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INTRODUCTION

Uro-gynecological robotic (UGRS) surgery is a widespread procedure nowadays. However, pneumoperitoneum and Trendelemburg position have been demonstrated to impair respiratory function, worsening oxygenation[1].

OBJECTIVES

Our study compares the effects on oxygenation of conventional ventilation (CV) with respect to esophageal pressure driven ventilation (DV) in patients undergoing to UGRS.

METHODS

A modified nasogastric catheter with both esophageal and gastric balloon was inserted in sixteen patients undergoing to UGSR. Patients were randomly assigned to CV or DV. In DV group positive end-expiratory pressure (peep) was set, according to esophageal pressure calibrated measurements, to maintain a positive expiratory transpulmonary pressure (Pl_{exp})[2][3]. Arterial oxygen tension - inspired oxygen fraction ratio (PaO_2/FiO_2) was computed at specific time-points: after anesthesia induction (T0), at pneumoperitoneum and Trendelemburg application (T1), after 20 (T2), 60(T3), 120 (T4) minutes from peep application, at the end of surgery (T5), and at awakening (T6). Pl_{exp} was monitored from T0 to T5. Finally, lung ultrasound score (LusS) was computed before anesthesia induction (TA) and at T6.

RESULTS

PaO_2/FiO_2 was comparable between two groups at each predefined time-point. However, in DV group, PaO_2/FiO_2 increased from T1 to T6 ($p<0,0005$). In DV group Pl_{exp} was positive and higher at T2, T3, T4, and T5 with respect to T1 ($p<0,05$). Instead, in CV group, Pl_{exp} was always negative. Finally, LusS increased between TA and T6 only in CV patients ($p<0,05$).

CONCLUSION

Our preliminary results suggest that the effects on oxygenation of DV and CV during UGRS are comparable. However, DV strategy seems to better improve oxygenation over the study steps, principally between pneumoperitoneum plus Trendelemburg application and early postoperative period with respect CV.

REFERENCES

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