

lungs, as described in the model by Ueda et al.¹ However, as illustrated in Fig. 1, the diaphragm shape does not appear to change significantly during PnP. Thus, pneumoperitoneum may cause a significant increase in atelectasis,² particularly in dependent regions.³ Cyclic recruitment of atelectasis areas may increase mechanical stress in the lung parenchyma,⁴ which, together with other areas of preoperative or intraoperative dysfunction, may produce significant perioperative pulmonary dysfunction as a potential cause of postoperative pulmonary complications (PPC).

Despite the interesting outcome found by Ueda et al.¹ regarding the increased functional residual capacity (FRC) due to abdominal wall elevation and probable change in diaphragm conformation, important points are worth noting, such as the lack of information on the use of PEEP and recruitment maneuver, which would directly affect FRC. Moreover, although there are conflicting results in the literature regarding lung compliance improvement⁵ or maintenance⁶ during abdominal wall elevation, we don't know whether the FRC improvement was sufficient to optimize pulmonary compliance. In addition, we still lack information if the FRC improvement during abdominal wall elevation is maintained postoperatively. If so, this may be a potential strategy for high-risk patients to develop PPC.

Finally, the lung characteristic heterogeneity leads us to think about the importance of lung function regional analysis using computed tomography or electrical impedance tomography. The analysis performed with Engström Carestation (GE Health Care, UK Ltd., Buckinghamshire, England) allows global measurement of lung function. The method used for abdominal wall elevation was lifting the right costal arch and umbilical region, which could mean a better improvement of the right lung FRC, maintaining the left lung potential atelectasis. Thus, the actual change in regional pulmonary function during laparoscopic surgery with abdominal wall elevation remains unknown.

Conflicts of interest

The authors declare no conflicts of interest.

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Occupational hazards due to exposure to waste anesthetic gases



Riscos devido à exposição ocupacional aos resíduos de gases anestésicos

Dear Editor,

The publication on “Occupational hazards due to exposure to waste anesthetic gases” is very interesting.¹ Lucio LMC, Braz et al. noted that “*The occupational hazards related to WAGs including genotoxicity, mutagenicity and oxidative stress, stand as a public health issue and must be acknowledged by exposed personnel and responsible authorities, especially in developing countries. Thus, it is*

urgent to establish maximum safe limits of concentration of WAGs in ORs and educational practices and protocols for exposed professionals.”¹ In fact, the occupational health of medical personnel is usually forgotten. Lack of concern and no risk monitoring is common.

In our experience from Thailand, it is approved that exposure to medical waste in hospital is a cause of carcinogenicity to medical personnel.² The important issue is how to implement a preventive measure for medical personnel. For one who works in anesthesiology, risk reduction by protective tool is needed and there is a requirement for regular monitoring for the health problem. Nevertheless, the monitoring might be complex since one has exposure to both environmental and occupational hazards. Minimizing of exposure is needed³ and it is an actual challenge in the situation of high workload for anesthesiologist at present.

Conflicts of interest

The authors declare no conflicts of interest.

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