

## ANSWERING REVIEWERS



June 21, 2013

Dear Editor,

Please find enclosed the edited manuscript in word format ( Kulkarni ESPS Manuscript NO:3428-review.doc ).

**Title:** Suspected Cerebral Arterial Gas Embolism (CAGE) During a Laparoscopic Nissen Fundoplication

**Authors:** Gaurav V. Kulkarni, MD, P. Marco Fisichella, MD, Barbara G. Jericho, MD

**Name of Journal:** *World Journal of Anesthesiology*

**ESPS Manuscript NO:** 3428

The manuscript has been improved according to the suggestions of reviewers:

1. Format has been updated.

2. Revision has been made according to the suggestions of the reviewers

(1) Reviewer 00852498.

A. Neurosurgery assessment rewording. **Response:** See p.5 and rewording of neurosurgery assessment of patient.

B. Reviewer states "you give the improvement in upper extremity strength but the initial strength is not précised". **Response:** Initial strength in upper extremity is précised in document.

C. Other etiologies. **Response:** Please see page 6 for the other etiologies considered in this patient.

(2) Reviewer 00190038

A. Delete last sentence in abstract. **Response:** Last sentence deleted.

B. Introduction -"risk" replaced with the word "complication". **Response:** risk replaced with complication.

C. Name the standard noninvasive variables measured. **Response:** The ASA standard monitors are named.

D. Name the doses of anesthetics used also name the neuromuscular blocker and the dose you used. **Response:** doses and names of anesthetics and neuromuscular blockers are named.

E. CO<sub>2</sub> venous embolism has a prevalence of 15/100,000 cases per year: Please clarify where this prevalence applies, e.g. in USA, in all over the world, where? **Response: We clarified and updated the reference.** CO<sub>2</sub> embolism can be fatal, yet the incidence during laparoscopic surgeries is varied. The true incidence is difficult to determine secondary to subclinical cases and the sensitivity of the detection of gas embolism by available monitors during procedures. Hong et al. report that the incidence of subclinical embolisms in laparoscopic radical prostatectomies is 17%<sup>[3]</sup>.

F. Reviewer states" References must accompany the statement for the postpartum hypercoagulable state four months after delivery as the patient delivered her baby four months earlier. In general hypercoagulation has been shown by thromboelastography 3 weeks after vaginal delivery

(Saha et al: Haemostatic changes in the puerperium '6 weeks postpartum' (HIP Study) - implication for maternal thromboembolism. Br J Obst Gynaecol 2009;116:1602-1612)." Unless references are added the whole paragraph must be deleted.**Response:** The authors agree and paragraph has been deleted.

G. Discussion condensed. **Response:** discussion has been condensed. Since CAGE and the treatment of CAGE are a paucity in our literature, the educational point of distinguishing the treatment of venous gas embolism in which patients are placed in the Trendelenburg and left lateral decubitus position from patients with CAGE who are placed in the supine position to avoid gas bubbles going to the head is emphasized in this case report.

H. Discussion How is explained the negative tests for CO<sub>2</sub> embolism and the neurological deficits? **Response:** The rapid elimination of CO<sub>2</sub> due to the high solubility of carbon dioxide in blood (the blood/gas solubility of CO<sub>2</sub>, nitrous oxide, dissolved oxygen, and nitrogen are 0.6, 0.45, 0.024, and 0.013 ml/ml solvent with 100% gas at 17 degrees Celsius respectively) as well as a reduction in CO<sub>2</sub> insufflation pressures contributed to the transient nature of this patient's symptoms and the elusiveness of medical studies.

I. Discussion-discuss blood solubilities.**Response:** The physical properties of CO<sub>2</sub>, nitrous oxide, oxygen, and air are compared in regard to blood solubility.

J. Cite a reference relevant to the safe values of insufflation pressure.**Response:**  
Nagao K, Reichert J, Beebe DS, Fowler JM, Belani KG. Carbon dioxide embolism during laparoscopy: effect of insufflation pressure in pigs. *JSLs*.

1999 Apr-Jun;3(2):91-6.[PMid:10444005 PMCID:3015330]

3. References and typesetting were corrected. The first pages of references 12 and 18 are included.

Thank you again for publishing our manuscript in the *World Journal of Anesthesiology*.

Sincerely yours,

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