Author’s response to reviews

Title: Non-Invasive Respiratory Volume Monitoring Identifies Opioid-Induced Respiratory Depression in an Orthopedic Surgery Patient with Diagnosed Obstructive Sleep Apnea: A Case Report

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Dear Editor,

We are excited at the opportunity that you have given us to improve our manuscript “Non-Invasive Respiratory Volume Monitoring Identifies Opioid-Induced Respiratory Depression in an Orthopedic Surgery Patient with Diagnosed Obstructive Sleep Apnea” and make it suitable for publication in The Journal of Medical Case Reports. We thank you and the reviewers for the attention you gave to our manuscript and appreciate your thoughtful commentary. We have reviewed the reviewers’ suggestions and have made edits to address their comments and thereby improve the manuscript.

To enhance readability of the revised manuscript, substantive changes are noted in red; deletions are not noted. Thank you once again for your assistance in improving this manuscript. We look forward to your feedback and working with you in the future.

Reviewer #1
R1: Respiratory volume measurement provides real time measurement of tidal volume, respiratory rate, minute ventilation via a standardized set of thoracic electrodes and provides early identification of respiratory compromise. It provides the length and pattern of apnoeic and hypoapnoeic episodes and increase in such responses after narcotic dosages. Before other clinical parameters this provides early diagnosis.

The reviewer has provided an excellent summary of our manuscript and has made no suggestion regarding manuscript changes.

Reviewer #2
R2: General comment: This report is well written manuscript for a very regular problem which medical personnel miss in postoperative period.

We thank the reviewer for the positive feedback.

R2: The patient was a known case of OSA with CPAP therapy, then why the
authors chosen narcotic analgesia in postoperative period, knowing that opioids would produce respiratory depression. Whether the manuscript is study of a case to prove usefulness of RVM or a case report that was detected by RVM?

The authors of this study and research personnel were not part of patient care, this was strictly an observational study. All decisions were made by clinical personnel, who were blinded to the RVM.

R2: Specific comments:

R2: Revisions necessary for publication:

R2: Abstract: a. Conclusion: the sentence ‘Because the available monitoring did indicate the patients true respiratory status the patient was treated with additional opioids, markedly increasing his risk for further respiratory decline.’ is contradictory and not clear, please check it. I think ‘Because the available monitoring did not indicate – will be correct

Change made as suggested by the reviewer.

R2: Whether the patient had created clinical signs like snoring and strider during the period when RVM recorded low minute ventilation. These signs are very common with OSA patients and the presence will alarm the health care provider. This has to be mentioned.

No audible snoring or otherwise outward indications of obstruction were present in pre-operative holding or in the post-anesthetic care unit during the periods in which notable apneic events were observed. The text has been updated to include this information.

R2: CASE HISTORY- Anesthesia part- the patient of 116kg ‘receiving 50 mg of IV rocuronium’ for tracheal intubation, I think less than the recommended dose.

50mg is the initial dosage that the patient received. The recommended initial dosage of IV rocuronium for tracheal intubation is 0.45-0.6 mg/kg. Note that it is typically recommended that this calculation be based on ideal body weight or adjusted body weight, both of which would be considerably lower than the patient weight of 116 kg, given his height (185 cm). The reviewer will also note, as mentioned in the text, that an additional 40 mg of rocuronium was given over the course of the procedure, for a total dose of 90 mg.

R2: CASE presentation last paragraph- why did the patient was not observed in PACU knowing that his minute ventilation is 44% than predicted? Was this informed to the patents?

As we previously mentioned, the study was observational and staff (and patients) were blinded to the RVM’s measurements.