Author’s response to reviews

Title: Regional anticoagulation with heparin of an extracorporeal CO2 removal circuit: a case report

Authors:

jacopo tramarin (trama21@gmail.com)

Andrea Cortegiani (andrea.cortegiani@unipa.it)

Cesare Gregoretti (c.gregoretti@gmail.com)

Filippo Vitale (fi.vitale@hotmail.it)

Cesira Palmeri (cesira.palmeri@unipa.it)

Pasquale Iozzo (pasquale.iozzo@libero.it)

Francesco Forfori (francesco.forfori@unipi.it)

Antonino Giarratano (antonino.giarratano@unipa.it)

Version: 1 Date: 11 Feb 2019

Author’s response to reviews:

Dear Editor

Dear Reviewers

Thank you very much for your revision that was more than helpful to improve our manuscript.

We provide here a point-by-point reply to your comments and queries.

Looking forward to receiving your response and those from Reviewers, if they have the chance to see the manuscript for a second time.

Best regards

Jacopo Tramarin, MD
Reviewer #2:

Thank you for your comments. Following your revision, we reviewed the English form of our manuscript with help of a professional.

Comment: COPD GOLD classification is not correct - there is no class III. It is either stage I-IV based on obstructive limitation on spirometry or Group A-D clinically (GOLD guidelines for reference)

Reply: Thank you for your comment we apologize for this inconvenience, we reported the correct COPD class, the text has been modified as follows:

Quote: “A 56 years old male with a history of heavy smoking, COPD GOLD class C, type II diabetes, hypertension and two recent hospitalizations for respiratory failure in the last year, was admitted to our emergency department for severe dyspnea and desaturation” (page 3 , line 67-69)

Comment: The etiology of worsening hypercapnia is very relevant to the case and explanation has not been provided, neither the details about the ventilator strategies nor the salvage strategies prior to proceeding to invasive ECCO2r have been mentioned

Reply: Thank you for your comment. In our opinion, the most likely reason for worsening of Pco2 was the severity of pneumonia. Of note our patient has an obstructive restrictive lung pattern, and this may have led to worsening gas exchange associated with the progression of lung infection.

Following your comment we specify this aspects “On Day 4 after admission, due to the severity of lung infection, hypercapnic respiratory acidosis worsened to a pH of 6.98 and a pCO2 level of 157 mmHg despite profound sedation and the maximization of minute alveolar ventilation” (page 4, line 83-85)

Our ventilaton strategy has been to maximize the minute alveolar ventilation by increasing the respiratory frequency and inspiratory pressure. Such optimization has been pushed until safe
pressure limits, taking into account the patient’s lung mechanics. Nonetheless a life threatening hypercapnic respiratory acidosis persisted.

Following your comment we changed the text as follows: “On Day 4 after admission, due to the severity of lung infection, hypercapnic respiratory acidosis worsened to a pH of 6.98 and a pCO2 level of 157 mmHg despite profound sedation and the maximization of minute alveolar ventilation” (page 3-4, line 83-85)

Furthermore:

“Our patient had an acute COPD exacerbation which failed NIV treatment in the ED. Mechanical ventilation in the ICU, was challenging due to the patient’s obstructive restrictive pattern. Minute ventilation was increased until 13 L/min, reaching the limits of safe pressure (driving pressure < 15 cm H2O). However, acceptable Ph and CO2 levels were not obtained. Being standard medical treatment and mechanical ventilation unsuccessful, ECCO2r was started to improve the life threatening hypercapnic acidosis and potentially injurious mechanical ventilation.”