

Dear Editor,

Please find the edited manuscript “Case Series of Non-Invasive Home Lung Impedance Monitoring in Early Post-Acute Heart Failure Discharge” by Edita Lycholip et al. reviewed for consideration for publication in the “World Journal of Clinical Cases”.

We have done the changes you and reviewers asked us to do, thus improving the quality of the manuscript. Here is the point-to-point answer to your and the reviewers’ comments:

- We have added Running title
- We have added the postal code, where needed
- We have added telephone number according to the requirements
- We have prepared the audio core tip
- We have presented the following seven aspects: Chief complaints; History of present illness; History of past illness; Personal and family history; Physical examination upon admission; Laboratory examinations; Imaging examinations
- We have written the section of final diagnoses
- We have written the section of treatment
- We have written the section of outcome and follow up
- We have provided the decomposable Figure 2, Figure 3, and Figure 4
- We have provided all abbreviations

The reviewers’ comments:

All these changes are included in the resubmitted edited manuscript no 45157. If you activate the tracking changes tool of Microsoft office, you will find all changes done throughout the manuscript. Some of the main changes are highlighted in the text.

In addition, we have submitted the following documents:

- The approved grant application form.
- The updated (after the editing) CARE Checklist (2016).
- The Audio Core Tip.
- Non-Native Speakers of English Editing Certificate

#### PEER-REVIEW REPORT: I (1)

The paper suffer from the limited number of cases that may only suggest the need for further studies. The three figures clearly show that changes in impedance were not associated with weight changes and in the discussion is reported that "Though the monitoring of weight changes caused by fluid retention is routinely recommended for HF patients [8], several studies showed that many episodes of worsening HF did not appear to be associated with weight gain; therefore, the value of weight monitoring for HF management was questioned [9,10]. "May you give some explanations about this?

#### *RESPONSE I (1).*

Episodes of heart failure exacerbation may not be always associated with weight gain but may be explained by redistribution of fluid. We added explanation on page 19: "For example, in a case-control study 54% of patients hospitalized due to AHF gained  $\leq 1$  kg during the month prior to admission. This suggests that volume overload incompletely characterizes the pathophysiology of AHF and redistribution of volume may also contribute to the development of signs and symptoms of congestion".

#### PEER-REVIEW REPORT: I (2)

Has been this method compared with chest echo in hospital or in outpatients settings?

#### *RESPONSE Editorial comment I (2).*

Thank You for this relevant question. To our knowledge this method has not been compared with the chest echo nor in the hospital neither in out-patient settings.

#### PEER-REVIEW REPORT: II (1)

The paper presents three cases of patients who underwent lung impedance monitoring. The possible usefulness of this technique is clearly shown but the following points should be better discussed: - Lung impedance is able to detect lung congestion. However, in the case of right heart failure this technique could be less sensitive than total body impedance measurement –

#### *RESPONSE II (1).*

The measurement of chest impedance seems to be clinically more challenging than the evaluation of peripheral congestion. During an objective examination, peripheral fluid is easier to detect, while crackles in the lungs are far less sensitive sign.

#### PEER-REVIEW REPORT: II (2)

There are other techniques able to monitor lung impedance. In particular, OptiVol by Medtronic.

*RESPONSE II (2).*

We added explanation on page 17: “Monitoring of lung impedance is also possible by OptiVol feature and implanted cardioverter defibrillator or biventricular pacemaker. Although adding OptiVol alerts to HF management in observational studies was shown to improve patient prognosis as well, the positive predictive value for HF exacerbations was found to be only moderate[ 6,7]”.

The main disadvantages of these techniques are invasiveness, relatively high cost and inapplicability on a routine basis”.

PEER-REVIEW REPORT: II (3)

The authors should briefly discuss the advantages and disadvantages of their approach compared with the other currently available.

*RESPONSE Editorial comment II (3).*

The advantages of the edema guard monitor, such as the ability to perform measurements at home, high sensitivity, non-invasive, briefly described on pages 18,

The disadvantage this measurements were related with needed to help of the patients’ caregivers once every day, attaching EGM electrodes on the front and on back side of the chest wall (pages figure 1 [page 6]): and page 18: “Importantly, the measurement of LI with the EGM at home requires the help of a caregiver to attach electrodes to the chest. Though not technically difficult, this dependence on family members may be considered as a disadvantage of the method”

PEER-REVIEW REPORT: II (3)

At which change of impedance the authors recommend changes in diuretic dose?

*RESPONSE Editorial comment II (3).*

We added explanation on page 18: “We have applied a threshold of approximately 10% for reduction of LI (from the initial value measured on discharge) for therapy adjustment; this value is based on previous publications showing the LI dynamics during HF hospitalization and our own experience” [12, 4]

PEER-REVIEW REPORT: II (4)

Is there a possible variability in the impedance related to the chest conformation?

*RESPONSE Editorial comment II (4).*

Thank You for this question. In fact, chest deformation can affect the value of impedance; however, this does not preclude the use of the method because decision-making is based on the dynamics of individual impedance values for each patient, and specific algorithm eliminates the impedance of chest wall in each measurement.

PEER-REVIEW REPORT: II (5)

Cost effectiveness of the technique should be briefly discussed.

*RESPONSE Editorial comment II (5).*

“The IMPEDANCE-HF trial revealed that the use of lung impedance (LI) measurements for the guidance of the preemptive treatment of patients with chronic HF reduced all-cause and HF hospitalizations by 39% and 55%, respectively”. [ ]

We added explanation on page 18: “Considering data on reduction of HF hospitalizations using this kind of congestion monitoring <sup>[3]</sup>, financial savings with EGM may be highly significant due to relatively low cost of the device and regular service”.

I want to thank you for the extra time you gave us to be able to review the manuscript. I certify that the final version of the manuscript has been seen and approved by all authors. Finally, I verify that neither the submitted paper nor any similar paper has been or will be submitted to or published in any other printed or digital publication.

Sincerely,

Edita Lycholip