

MATTERS ARISING

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Response to commentary “The importance of assessing left ventricular longitudinal function in presence of increased afterload”

Hugues de Courson^{1,2}, Alexandre Loiseau¹, Grégoire Chadefaux¹ and Matthieu Biais^{1,3,4*}

Dear Editor,

We very much appreciate Dr. Santonocito’s thoughtful comments on our research, titled Myocardial dysfunction assessed by speckle-tracking in good-grade subarachnoid hemorrhage patients (WFNS 1–2): a prospective observational study [1].

The authors raise two valuable points:

Threshold for defining left ventricular damage We agree that the chosen threshold may have been too high for our specific population. We addressed this issue in our paper by presenting and discussing results for a lower threshold of – 17%. However, it’s important to note that the research questioning this common threshold in critical care patients wasn’t published at the time our protocol design and clinical trial registration (NCT03761654) were finalized.

Accounting for high afterload We agree that high afterload could influence the results. Note that the S’ wave

results presented were for the right ventricle. However, we were able to re-analyse the ultrasound images to obtain the value of the lateral S’ wave at the mitral level. So, we performed, as asked, further analysis to assess the concordance and correlation between global longitudinal strain and mitral S’ wave, providing a more comprehensive picture of left ventricular function in this context. The correlation between S’ wave and SLG was very low and not statistically significant ($r = -0.023$; $p = 0.875$). Using a threshold of 6.8 according to the work of Park et al. [2], the concordance rate between GLS and S’ wave was 45% for a pathological GLS threshold of – 20% and 79% for a pathological GLS threshold of – 17% (Fig. 1).

These results therefore suggest that mitral S’ wave analysis is not a better surrogate for GLS in this population.

Abbreviations

GLS Global longitudinal strain
WFNS World Federation of Neurologic Surgeons

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Author contributions

HDC: recruited patients, collected the data, performed statistical analysis and wrote the manuscript. AL: recruited patients, collected the data and helped in writing the manuscript. GC: recruited patients, analyzed the data and helped in writing the manuscript. MB: designed the study, helped analyze the data and helped in writing the manuscript. All authors approved the final version.

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Availability of data and materials

All data generated or analyzed during this study are included in this published article.

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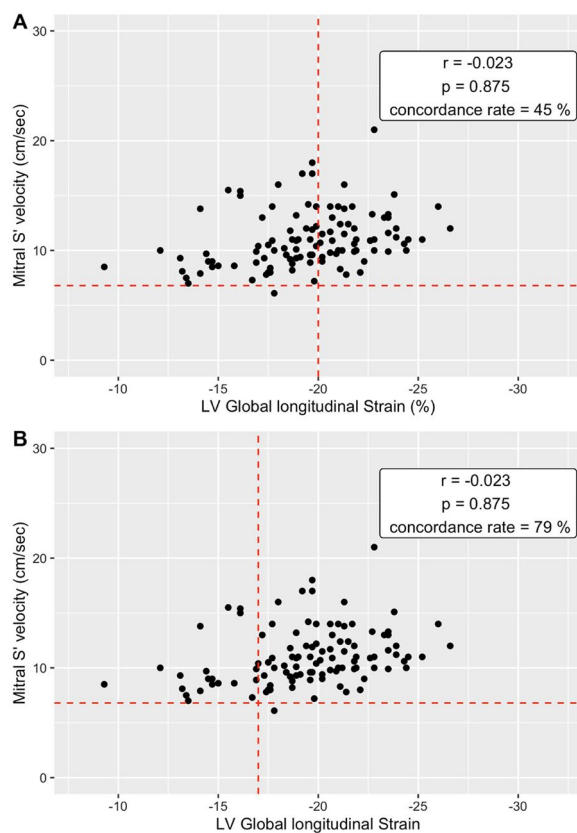


Fig. 1 Relationship between left ventricular ejection fraction (LVEF) and Mitral S' velocity. **A** Strain threshold of -20 . **B** Strain threshold of -17

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee (Ile de France Research Subjects Protection Committee VI—ID RCB: 2018-A02434-51, November 21st, 2018). This study was registered on Clinicaltrials.gov: NCT03761654.

Consent for publication

The manuscript has been read and its submission approved by all co-authors. According to the French law, the patients and/or next of kin were informed about the inclusion of their anonymized data in the database, and none declined participation.

Competing interests

M.B received honoraria from Edwards Lifesciences and Pulsion Medical System as a lecturer. The other authors have no competing interests.

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