



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



LETTER TO THE EDITOR

Reply to the Letter to the Editor: Takotsubo syndrome in the setting of COVID-19: Pathogenetic and diagnostic implications



Resposta à Carta ao Editor: Síndrome de Takotsubo no contexto da COVID-19: implicações patogénicas e diagnósticas

We appreciate the interest shown in our case report published in the Portuguese Journal of Cardiology.¹ We have carefully read the comments made and would like to make the following considerations.

Through a brilliant exposition of the pathophysiological factors involved in the development of Takotsubo syndrome (TTS), Yalta et al. posed a series of questions related to the reported case that could not be initially presented due to limited space. Relating to the presence of concomitant inflammatory factors that could favor the development of TTS, widely described by Yalta et al.,^{2,3} the patient only had hypoxemia (basal saturation at admission of 82%) secondary to bilateral SARS-Cov-2 pneumonia, which required supplemental oxygen with a high-flow device. There was no need for bronchodilator therapy. However, in addition to advanced age as a frailty criterion, no other stress factors were documented, such as autoimmune diseases, serious comorbidities; and acute phase reactants were not significantly altered. Hypoxemia resolved with the implemented treatment, without the need for hospitalization in the intensive care unit. Although in many cases, the attribution of TTS to SARS-Cov-2 infection with favorable evolution may be unlikely, in our case there are no other associated triggering factors that contributed to its development.

Regarding whether it is mandatory to make the diagnosis of TTS using invasive tests, as described by Yalta et al., since in a large percentage of patients TTS presents characteristics indistinguishable from a STEMI, emergent coronary angiography enables the detection and treatment of possible acute coronary occlusions in an appropriate time window. Furthermore, since the main feature of TTS is usually a regional motility disturbance that extends

beyond the vascular distribution of an epicardial vessel,² we believe that a comprehensive evaluation of the relationship between motility disturbances and the course of coronary arteries, by performing coronary angiography and ventriculography in a single medical act, continues to be the cornerstone of the TTS diagnosis.⁴

Funding

None.

Conflicts of interest

The authors have no conflicts of interest to declare.

References

- Rivera K, Fernández-Rodríguez D, Zielonka M, et al. Diagnosis of Takotsubo syndrome in the COVID-19 era. *Rev Port Cardiol (Engl Ed)*. 2021;40:899–901, <http://dx.doi.org/10.1016/j.repce.2021.10.027>.
- Yalta K, Yetkin E, Yalta T. Systemic inflammation in patients with Takotsubo syndrome: a review of mechanistic and clinical implications. *Monaldi Arch Chest Dis*. 2021;91, <http://dx.doi.org/10.4081/monaldi.2021.1718>. PMID: 33728882.
- Yalta K, Yalta T, Gurdogan M, et al. Cardiac biomarkers in the setting of asthma exacerbations: a review of clinical implications and practical considerations. *Curr Allergy Asthma Rep*. 2020;20:17, <http://dx.doi.org/10.1007/s11882-020-00909-5>.
- Ghadri JR, Wittstein IS, Prasad A, et al. International expert consensus document on Takotsubo syndrome (Part I): clinical characteristics, diagnostic criteria, and pathophysiology. *Eur Heart J*. 2018;39:2032–46, <http://dx.doi.org/10.1093/eurheartj/ehy076>.

Kristian Rivera*, Diego Fernández-Rodríguez,
 Marta Zielonka, Juan Casanova-Sandoval

University Hospital Arnau de Vilanova, Institut de Recerca Biomèdica de Lleida (IRBLleida), Lleida, Spain

* Corresponding author.

E-mail address: psrivera.lleida.ics@gencat.cat (K. Rivera).

DOI of original article: <https://doi.org/10.1016/j.repce.2021.12.012>

<https://doi.org/10.1016/j.repce.2022.08.004>

0870-2551/© 2022 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).