

Multimodality imaging and thrombolytic therapy for prosthetic valve thrombosis. Authors' reply

Tomasz Szatan¹, Artur Sufryd¹, Paweł Jastrzębski¹, Andrzej Kubicius¹, Katarzyna Mizia-Stec^{2,3,4}, Maciej T Wybraniec^{2,3,4}

¹Department of Cardiology in Cieszyn, Upper-Silesian Medical Center, Cieszyn, Poland

²1st Department of Cardiology, School of Medicine in Katowice, Medical University of Silesia, Katowice, Poland

³Upper-Silesian Medical Center, Katowice, Poland

⁴European Reference Network on Heart Diseases-ERN GUARD-HEART, Amsterdam, The Netherlands

Correspondence to:

Assoc. Prof. Maciej T Wybraniec, MD, PhD,

1st Department of Cardiology, School of Medicine in Katowice, Medical University of Silesia, Ziolowa 47, 40–635 Katowice, Poland
phone: +48 32 359 88 90,
e-mail:
maciejwybraniec@gmail.com

Copyright by the Author(s), 2024

DOI: 10.33963/v.phj.102418

Received:

August 31, 2024

Accepted:

August 31, 2024

Early publication date:

September 3, 2024

In the current issue of the *Polish Heart Journal*, Dr. Ezgi Güner [1] commented on our clinical vignette entitled “Ultraslow thrombolysis for subacute mitral prosthetic valve thrombosis,” referring to several shortcomings, which require further elaboration. First, we would like to express our gratitude for raising the importance of an issue of differentiation between pannus and thrombus, both of which can lead to signs and symptoms of heart failure and increased mean pressure gradient but require different management. Dr. Güner provided data supporting the multimodality imaging approach, with the central use of computed tomography (CT) imaging in addition to transesophageal echocardiography to further characterize the lesion responsible for the increased transmitral gradient. Although cardiac CT emerges as a crucial diagnostic modality in diagnostics of valvular heart disease and pathology of prosthetic heart valves in patients with sinus rhythm, we decided not to perform cardiac CT due to the risk of the impaired quality of imaging related to an irregular high heart rate in the course of atrial fibrillation, which precluded adequate electrocardiogram gating [2]. Also, transesophageal echocardiography showed a high possibility of involvement of both thrombus and pannus in the pathophysiology in this clinical scenario. Additionally, the evidence of subtherapeutic values of the international normalized ratio spoke in favor of the thrombotic mechanism. Following the prolonged

administration of a thrombolytic agent at a low dose, we confirmed a significant reduction of transmitral gradient accompanied by symptomatic improvement, which indirectly confirmed accurate diagnosis.

Second, Dr. Güner provided data supporting a more aggressive regimen of thrombolysis (25 mg/6 hour instead of 25 mg/25 hour), which was shown to be more effective in hemodynamically unstable patients [3]. The patient in question was characterized by significant exertional dyspnea (New York Heart Association class III) but did not show symptoms of acute heart failure or hemodynamic instability, which supported the use of a less aggressive thrombolytic approach.

Third, Dr. Güner referred to various recommendations by the European Society of Cardiology and the American College of Cardiology/American Heart Association, with the latter giving equal recommendations for both surgical treatment and thrombolysis [4, 5]. This, indeed, means that ultraslow thrombolysis represents an alternative to urgent surgery, which is not sufficiently endorsed by European guidelines [5]. In our opinion, the presented case underscores the utility of ultraslow dose thrombolytic therapy, which is underrepresented in the contemporary European guidelines [5]. Notably, ultraslow thrombolysis can be used in a wider group of patients than traditional thrombolysis, especially in cases of high perioperative risk. We would like to once again thank Dr. Güner for all the constructive remarks.

Article information

Conflict of interest: None declared.

Funding: None.

Open access: This article is available in open access under Creative Commons Attribution-Non-Commercial-No Derivatives 4.0 International (CC BY-NC-ND 4.0) license, which allows downloading and sharing articles with others as long as they credit the authors and the publisher, but without permission to change them in any way or use them commercially. For commercial use, please contact the journal office at polishheartjournal@ptkardio.pl

REFERENCES

1. Güner E, Aydın M, Şimşek A, et al. Multimodality imaging and thrombolytic therapy for prosthetic valve thrombosis. *Pol Heart J*. 2024, doi: 10.33963/v.phj.102152, indexed in Pubmed: 39177317.
2. Patel KP, Vandermolen S, Herrey AS, et al. Cardiac computed tomography: Application in valvular heart disease. *Front Cardiovasc Med*. 2022; 9: 849540, doi: 10.3389/fcvm.2022.849540, indexed in Pubmed: 35402562.
3. Özkan M, Gündüz S, Biteker M, et al. Comparison of different TEE-guided thrombolytic regimens for prosthetic valve thrombosis: The TROIA trial. *JACC Cardiovasc Imaging*. 2013; 6(2): 206–216, doi: 10.1016/j.jcmg.2012.10.016, indexed in Pubmed: 23489534.
4. Vahanian A, Beyersdorf F, Praz F, et al. 2021 ESC/EACTS Guidelines for the management of valvular heart disease. *Eur Heart J*. 2022; 43(7): 561–632, doi: 10.1093/eurheartj/ehab395, indexed in Pubmed: 34453165.
5. Otto CM, Nishimura RA, Bonow RO, et al. 2020 ACC/AHA guideline for the management of patients with valvular heart disease: Executive summary. *J Am Coll Cardiol*. 2021; 77(4): 450–500, doi: 10.1016/j.jacc.2020.11.035, indexed in Pubmed: 33342587.