



KARDIOLOGIA POLSKA

Polish Heart Journal
The Official Peer-reviewed Journal
of the Polish Cardiac Society
since 1957

Online first

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ISSN 0022-9032

e-ISSN 1897-4279

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Article type: Letter to the Editor

Received: June 27, 2022

Accepted: June 27, 2022

Early publication date: June 28, 2022

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Arrhythmia coming from the transplanted heart: What problems does it generate? Further considerations. Authors' reply

Short title: Arrhythmia after OHT. Further considerations. Authors' reply

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Conflict of interest: None declared.

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We are very pleased with the discussion that occurred in the *Kardiologia Polska (Kardiol Pol, Polish Heart Journal)* that followed the clinical vignette presenting accessory pathway ablation in a patient after orthotopic heart transplantation (OHT). The upcoming questions and comments, including those contained in a letter to the editor by Drohomirecka et al. [1] suggest the presence of ambiguities as regards the choice of optimal arrhythmia treatment in that clinical situation.

As already noted [1], arrhythmias in the transplanted heart are not uncommon and affect approximately 7%–9% of patients. Supraventricular arrhythmias are predominant, among which atrial flutter is the most prevalent [2]. Tachyarrhythmias associated with the presence of an accessory pathway are reported in single cases in the literature. The experience of our center is

consistent with the quoted statistics and findings of colleagues from the Warsaw center. This is also confirmed by the data obtained from dedicated registries on this group of patients collected within our hospital. Dominant atrial flutter is more common in the long-term after heart transplantation. Their occurrence is favored by the development of areas of slow conduction, mainly in the region of myocardial damage after cardiac surgery or the occurrence of “bridges” with impaired conduction properties between the donor and recipient atrial tissue. Such arrhythmias can be effectively treated by performing ablation in this area [3].

Atrial fibrillation (AF) is a less common arrhythmia in transplanted hearts, especially in the long-term follow-up. This may be due to the heart transplantation technique during which isolation of the pulmonary veins and the posterior wall of the left atrium and parasympathetic denervation of the heart are achieved. Currently, this strategy is the methodological basis for percutaneous ablation of this arrhythmia [4]. Thus, the occurrence of AF should rather prompt us to search for other possible causes of its occurrence. Cardiac rejection, cardiac allograft vasculopathy or progression of heart failure should be considered first [5]. This risk obliges us to keep a close monitoring of patients immediately after OHT and in the long-term follow-up. Patients of our center undergo several follow-ups during the first 3 months after OHT. Apart from clinical assessment and the resting ECG analysis, patients undergo routine echocardiography and endomyocardial biopsies. Over time, with normal test results, the follow-up is less frequent and takes place every six months after the second year after transplantation. The standard of care after transplantation is also the follow-up coronary angiography 1 year after OHT, which, with normal vascular picture, is repeated every two years. Additional examinations, including long-term ECG monitoring, are performed after individual assessment of the clinical situation.

Finally, we would like to agree with the opinion presented by Drohomirecka et al. [1] on the possibility of donating a heart with the identified accessory pathway. This may be warranted by the real lack of donors or percutaneous ablation treatment options, the examples of which can be found in the literature [2]. We also agree with the opinion that the patient, when agreeing to receive a heart with an accessory pathway, should be aware of the need for additional electrophysiological intervention due to the identified abnormality in the donor heart. Surgical ablation during heart transplantation can be a theoretical alternative that is reported in the literature. However, this measure prolongs the procedure and, consequently, may be associated with a poorer prognosis of the recipient. The optimal timing of percutaneous ablation in post-transplant patients remains

unclear. In our opinion, if feasible, this procedure should be postponed until the expected healing of the cardiac sutures. The intervention should be accelerated in symptomatic patients with a history of recurrent atrioventricular tachycardia or AF conducted through the accessory pathway. In other cases, the time of the procedure should be discussed with the patient, who immediately after transplantation is at risk of many important procedures aimed at restoring optimal performance.

REFERENCES

1. Drohomirecka A, Farkowski MM, Maciąg A, et al. Arrhythmia coming from the transplanted heart: What problems does it generate? *Kardiol Pol.* 2022 [Epub ahead of print], doi: [10.33963/KP.a2022.0140](https://doi.org/10.33963/KP.a2022.0140), indexed in Pubmed: [35665907](https://pubmed.ncbi.nlm.nih.gov/35665907/).
2. Vaseghi M, Boyle NG, Kedia R, et al. Supraventricular tachycardia after orthotopic cardiac transplantation. *J Am Coll Cardiol.* 2008; 51(23): 2241–2249, doi: [10.1016/j.jacc.2008.02.065](https://doi.org/10.1016/j.jacc.2008.02.065), indexed in Pubmed: [18534271](https://pubmed.ncbi.nlm.nih.gov/18534271/).
3. Myrda K, Buchta P, Ciszewski G, et al. Atrial reentry tachycardia in the native part of the right atrium after heart transplant. Should we always ablate? *Kardiol Pol.* 2020; 78(10): 1047–1048, doi: [10.33963/KP.15500](https://doi.org/10.33963/KP.15500), indexed in Pubmed: [32640774](https://pubmed.ncbi.nlm.nih.gov/32640774/).
4. Hindricks G, Potpara T, Dagres N, et al. 2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS). *Eur Heart J.* 2021; 42(5): 373–498, doi: [10.1093/eurheartj/ehaa612](https://doi.org/10.1093/eurheartj/ehaa612), indexed in Pubmed: [32860505](https://pubmed.ncbi.nlm.nih.gov/32860505/).
5. Ahmari SAL, Bunch TJ, Chandra A, et al. Prevalence, pathophysiology, and clinical significance of post-heart transplant atrial fibrillation and atrial flutter. *J Heart Lung Transplant.* 2006; 25(1): 53–60, doi: [10.1016/j.healun.2005.07.017](https://doi.org/10.1016/j.healun.2005.07.017), indexed in Pubmed: [16399531](https://pubmed.ncbi.nlm.nih.gov/16399531/).