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

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We are very pleased with the discussion in *Kardiologia Polska* (*Kardiol Pol*, *Polish Heart Journal*) that followed the publication of the clinical vignette that presented accessory pathway ablation in a patient after orthotopic heart transplantation (OHT). The 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 common and affect approximately 7%–9% of patients. Supraventricular arrhythmias are predominant and among them atrial flutter is the most prevalent [2]. Tachyarrhythmias associated with the presence of an accessory pathway are reported in isolated cases in the literature. The experience of our center is consistent with the statistics quoted above 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. Its occurrence is favored by the appearance of slow conduction areas, 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 closely monitor patients immediately after OHT and in the long-term follow-up. Patients from our center undergo several follow-ups during the first 3 months after OHT. Apart from the clinical assessment and 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 a normal vascular picture, is repeated every two years. Additional examinations, including long-term electrocardiogram (ECG) monitoring, are performed after an 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, 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 intervention prolongs the procedure and, consequently, may be associated with a poorer prognosis for 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, may need many important procedures aimed at restoring optimal performance.

Article information

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REFERENCES

1. Drohomirecka A, Farkowski MM, Maciąg A, et al. Arrhythmia coming from the transplanted heart: What problems does it generate? Kardiol Pol. 2022; 80(7–8): 871–872, doi: 10.33963/KP.a2022.0140, indexed in Pubmed: 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, indexed in Pubmed: 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, indexed in Pubmed: 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, indexed in Pubmed: 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, indexed in Pubmed: 16399531.