Cardiac pacing in a heart transplant patient: a case report

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Introduction: Heart transplantation is nowadays a widely accepted and the only successful treatment option for patients with end-stage heart failure when all other options have been exhausted and life expectancy is less than one year despite optimal medical treatment. However, post-transplant complications such as sinus node injury and/or atrioventricular block necessitate pacemaker implantation. The choice of pacing strategy in heart transplant recipients is the subject of ongoing debate. The biatrial approach, in which dual-chamber pacemakers are implanted in both atria, has gained attention because of its potential to improve hemodynamic performance in these patients. Many studies suggest that implantation of dual-chamber pacemakers using the biatrial method may offer several benefits in heart transplant patients. These include improved atrial synchrony, improved ventricular filling, reduced risk of pacemaker syndrome and optimization of cardiac output. Additionally, this approach has shown potential in reducing the incidence of atrial arrhythmias commonly observed in this patient population.¹³

Case report: We present a 46-year-old patient who underwent a heart transplant in 2012. because of dilated cardiomyopathy. The patient was hospitalized again this year due to right-sided heart failure. Hospitalization was complicated by the clinical manifestation of sepsis. The nodal rhythm, with a daily average of 55 beats per minute, was monitored and the patient was scheduled for implantation of a permanent dual-chamber pacemaker. The implantation was further complicated by the atrial anastomosis and the difficulty of positioning and testing the atrial lead. Atrial lead was successfully implanted into the donor's part of the atria using conventional electrogram mapping around the anastomosis. Due to preserved AV conduction, the patient was implanted with a managed ventricular pacing mode device to promote intrinsic conduction by reducing unnecessary right ventricular pacing.

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- 1. Rivinius R, Helmschrott M, Rahm AK, Darche FF, Thomas D, Bruckner T, et al. Risk factors and survival of patients with permanent pacemaker implantation after heart transplantation. J Thorac Dis. 2019 Dec;11(12):5440-5452. https://doi.org/10.21037/jtd.2019.11.45
- 2. Copeland JG, Emery RW, Levinson MM, Icenogle TB, Carrier M, Ott RA, et al. Selection of patients for cardiac transplantation. Circulation. 1987 Jan;75(1):2-9. https://doi.org/10.1161/01.CIR.75.1.2
- Heart Failure Society Of America. Surgical approaches to the treatment of heart failure. J Card Fail. 2006 Feb;12(1):e76-9. https://doi.org/10.1016/j.cardfail.2005.11.015