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Background: Late graft dysfunction in patients after heart transplantation (HTx) is most often due to allograft rejection or allograft coronary artery disease but may also be due to infectious myocarditis or occasionally may occur without any documentable cause. Nonspecific allograft dysfunction may be caused by unrecognized myocarditis or even rejection because of unremarkable endomyocardial biopsy (EMB) specimens due to sampling error¹. Management of these patients is very challenging.

Case report: We present 3 patients who developed nonspecific allograft dysfunction within 2 years after HTx. 38-year-old male presented with severe acute heart failure with left ventricle ejection fraction (LVEF) 30% two weeks after acute respiratory infection. 68-year-old male presented with a gradual reduction of functional capacity and LVEF 40% one month after COVID-19 infection. 55-year-old female was asymptomatic with LVEF 50%. She received COVID-19 messenger ribonucleic acid (mRNA) vaccine 5 months before. All patients had elevated biomarkers of cardiac injury (high sensitive Troponin-I and N-terminal pro b-type natriuretic peptide (NT-proBNP)). Endomyocardial biopsy was negative for both cellular and antibody-mediated rejection but was also negative for histological signs of myocarditis. All patients were negative for donor-specific antibodies. Coronary angiography was normal. Cardiac magnetic resonance suggested a diagnosis of myocarditis. We have not diagnosed infectious cause in any of these patients. The findings were suggestive for clinically suspected myocarditis, and we decided to treat the patients with pulse steroid and intravenous immune globulins (IVIG). Patients showed significant improvement in graft function and so far have uneventful follow-up.

Conclusion: It is difficult to recognize the cause of allograft dysfunction in some patients after HTx. It is crucial to exclude allograft rejection and vasculopathy. Post-transplant myocarditis is very unusual cause of graft failure, and EMB may be negative due to a lack of sufficient sensitivity considering the limited possibility of myocardial sampling. Although there are no controlled randomized data on steroid and IVIG treatment in these patients it seems that such therapy is safe and effective.

LITERATURE

1. López-Sainz Á, Barge-Caballero E, Barge-Caballero G, Couto-Mallón D, Paniagua-Martin MJ, Seoane-Quiroga L, et al. Late graft failure in heart transplant recipients: incidence, risk factors and clinical outcomes. *Eur J Heart Fail.* 2018 Feb;20(2):385-394. <https://doi.org/10.1002/ehf.886>