EP CASE EXPRESS

Non-invasive electrophysiological imaging of acute rejection in a transplanted heart

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Case report

We present the first case of non-invasive cardiac electrophysiological mapping using electrocardiographic imaging (ECGI) of a 51-year-old man with acute cellular rejection 9 months after cardiac transplantation. He had moderate right ventricular (RV) systolic dysfunction and global left ventricular (LV) dysfunction (LVEF 40–45%) on echocardiogram, which progressed to cardiogenic shock requiring biventricular assist device (BiVAD) support. He had complete right bundle branch block (RBBB) on baseline ECG after transplantation, with a QRS duration (QRSd) of 140 ms, that had complete right bundle branch block (RBBB) on baseline ECG and returned to baseline (126 ms) a month later. Panel A shows the ECGI isochrone map on Day 1 of rejection, showing early activation (asterisks) of the septal RV outflow tract and LV apex, and a line of block along the septum causing delayed RV activation. Panel B shows resolution of the septal line of block a month later, after escalation of immunosuppressive therapy and BiVAD support, with delayed activation over the anterior RV, consistent with the patient’s baseline RBBB. Left ventricular activation was synchronous, while the RV and adjacent septum showed changes in the activation pattern over the course of rejection with changing block lines, indicating greater susceptibility to injury than that of the LV during rejection.

The full-length version of this report can be viewed at: http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/non-invasive-imaging-transplanted-heart.pdf

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