LETTERS TO THE EDITOR

To the Editor—The time has come to rethink our approach to heart failure with right bundle branch block

I read with great interest the article from Statuto and colleagues[1] describing a case of biventricular heart failure associated with right bundle branch block (RBBB), effectively treated with right bundle branch (RBB) area pacing and fusion with intrinsic left ventricular (LV) conduction. Compared to left bundle branch block, patients with RBBB benefit less from cardiac resynchronization therapy (CRT) via coronary sinus lead placement. However, some RBBB can display concomitant LV dyssynchrony amenable to correction with conventional CRT. LV electrical delay can be suspected at electrocardiogram when RBBB is "atypical" (absent or insignificant S wave in lateral limb leads)[2] or when associated with left hemiblock. The patient described by Statuto and colleagues[1] has a "typical" RBBB without axis deviation; however, when placing a lead in a coronary sinus lateral vein, intraprocedural LV electrical delay was not so bad (Q-LV interval 100 ms), considering that Q-LV >95 ms predicts acute hemodynamic improvement and reverse remodeling, also in RBBB.[2] Mechanical LV dyssynchrony can also be demonstrated by echocardiography and, along with severe functional mitral regurgitation, predicts CRT response in RBBB patients.[3]

It would have been useful to know whether, in addition to LV electrical delay, the patient also had concomitant mechanical echocardiographic LV dyssynchrony; in that case a positive response to conventional CRT could be also expected. Moreover, it would be interesting to have some more technical information. Was the device used "off-label" for conduction system pacing, with stylet-driven right ventricular (RV) bipolar lead connected to an IS-1 LV port? How was it programmed ("LV" pacing only)? Lastly, did "typical" RBBB precede the development of biventricular dysfunction in this patient? It could be intriguing to suppose a kind of abnormal conduction-induced cardiomyopathy (RBBB-induced?), considering absence of coronary artery disease and scar, with RBBB correction leading to a nearly complete normalization of RV-LV function. In this case RBB area pacing could become more than an alternative to CRT.

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We thank Dr De Maria for the insightful observations on our case report.

Firstly, spontaneous QRS was 160 ms, Q-LV was 100 ms, and an RV-LV was 60 ms; while this Q-LV is a very debatable predictor of cardiac resynchronization therapy (CRT) response in a right bundle branch block (RBBB) patient with a 160 ms QRS duration, the latter strongly recommends against CRT delivered at this site.[1] His bundle pacing to correct RBBB was too energy demanding, so we resorted to correct RBBB by fusion pacing of the posterior mid-to-basal right ventricular (RV) septum with intrinsic conduction along the His and left bundle. The IS-1 RV lead was connected to the left ventricle (LV) port of a CRT-defibrillator, and CRT was delivered RV-only. We never engaged directly the conduction system at this level (see original article). It is possible that capture and recruitment of the peripheral Purkinje network occurred, but this remains unproven by our pacing maneuvers. Thus, RBBB correction resulted in early depolarization of the midbasal posterior RV septum and fusion with intrinsic conduction, similarly to what happens with correction of left bundle branch block by LV-only pacing.[2]

The so-called RBBB-area pacing, as termed by Dr De Maria, is a novel concept that requires validation from a

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pathophysiological standpoint: there are indeed limitations to demonstrate a causative role of RBBB in the development of biventricular dysfunction in this patient. Both RBBB and biventricular dysfunction coexisted at clinical presentation; hence a temporal relationship cannot be ascertained. Mechanical inefficiency (Supplemental Figure 1) improved by correcting electrical dyssynchrony with RV-only fusion pacing, possibly owing to the absence of significant scarred areas. In this perspective, CRT has become a far broader term than biventricular pacing, as often referred to, including nowadays also conduction system pacing (CSP) and LV-only pacing. Correction of RBBB either by CSP or by RV-only pacing with fusion is yet another form of CRT, according to the approach put forth by Marcantoni and colleagues,[3] that is worthwhile to consider in the appropriate scenario.

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