Response to

DOI: 10.1111/jce.14734

RESPONSE TO LETTER TO EDITOR

WILEY

Response to: Next-level examination of His-optimized cardiac resynchronization therapy by noninvasive electrocardiographic activation mapping

To the Editor,

We thank Drs. Zweerink and Burri for their interest in our study of sequential His bundle and left ventricular pacing for cardiac resynchronization (CRT). We did not use the term His-optimized cardiac resynchronization therapy (HOT-CRT) as described by Vijayaraman et al. because those authors described patients in whom His bundle pacing (HBP) resulted in significant but suboptimal correction of the QRS duration (QRSd). In that series, HBP alone corrected the QRSd to an even greater degree than conventional biventricular pacing, whereas in our cohort, selective HBP resulted in minimal or no change in QRSd.[1,2] Our study, therefore, demonstrates that even when HBP does not modify a wide QRSd, it still provides a superior alternative to right ventricular pacing for electrical resynchronization.

We agree that vectorcardiographic QRS area is superior to QRSd for assessing CRT given its ability to better predict electrical dyssynchrony, hemodynamic response to CRT, and long-term outcomes of CRT.[3-5] Although requiring specialized acquisition, electrocardiographic imaging (ECGi) using body surface mapping is an intriguing tool to further study electrical dyssynchrony and the response to different CRT modes.[6,7] We look forward to the data that will be generated from Drs. Zweerink and Burri's ongoing study.

Amrish Deshmukh MD[1]
Frits W. Prinzen PhD[2]
Pramod Deshmukh MD[3]

[1]*Department of Internal Medicine, Division of Cardiovascular Medicine, Samuel and Jean Frankel Cardiovascular Center, University of Michigan, Ann Arbor, Michigan, USA*
[2]*Cardiovascular Research Institute Maastricht, Maastricht, The Netherlands*
[3]*Department of Internal Medicine, Division of Cardiology, Arrhythmia Center, Robert Packer Hospital, Sayre, Pennsylvania, USA*

Correspondence
Pramod Deshmukh, MD, Department of Internal Medicine, Division of Cardiology, Arrhythmia Center, Robert Packer Hospital, 1 Guthrie Sq, Sayre, PA 18840, USA.
Email: Seck_pat@guthrie.com

ORCID
Amrish Deshmukh http://orcid.org/0000-0002-2733-2844

REFERENCES

1. Vijayaraman P, Herweg B, Ellenbogen KA, Gajek J. His-optimized cardiac resynchronization therapy to maximize electrical resynchronization. *Circ Arrhythmia Electrophysiol*. 2019; 12(2):e006934.
2. Deshmukh A, Sattur S, Bechtol T, Heckman LIB, Prinzen FW, Deshmukh P. Sequential His bundle and left ventricular pacing for cardiac resynchronization. *J Cardiovasc Electrophysiol*. 2020;31(9): 2448-2454.
3. Mafi Rad M, Wijntjens GWM, Engels EB, et al. Vectorcardiographic QRS area identifies delayed left ventricular lateral wall activation determined by electroanatomic mapping in candidates for cardiac resynchronization therapy. *Heart Rhythm*. 2016;13(1):217-225.
4. De Pooter J, El Haddad M, De Buyzere M, et al. Biventricular paced QRS area predicts acute hemodynamic CRT response better than QRS duration or QRS amplitudes. *J Cardiovasc Electrophysiol*. 2017; 28(2):192-200.
5. van Stipdonk AMW, ter Horst I, Kloosterman M, et al. QRS area is a strong determinant of outcome in cardiac resynchronization therapy. *Circ Arrhythmia Electrophysiol*. 2018; 11(12):e006497.
6. Ploux S, Eschalier R, Whinnett ZI, et al. Electrical dyssynchrony induced by biventricular pacing: implications for patient selection and therapy improvement. *Heart Rhythm*. 2015;12(4): 782-791.
7. Gage RM, Curtin AE, Burns KV, Ghosh S, Gillberg JM, Bank AJ. Changes in electrical dyssynchrony by body surface mapping predict left ventricular remodeling in patients with cardiac resynchronization therapy. *Heart Rhythm*. 2017;14(3):392-399.

