Response to Letter From Vereckei Regarding, "QRS Area Is a Strong Determinant of Outcome in Cardiac Resynchronization Therapy"

Circulation: Arrhythmia and Electrophysiology

RESPONSE TO LETTER TO THE EDITOR

Response to Letter From Vereckei Regarding, "QRS Area Is a Strong Determinant of Outcome in Cardiac Resynchronization Therapy"

Antonius M.W. van Stipdonk, MD
Iris ter Horst, MD, PhD
Marielle Kloosterman, BSc
Elien B. Engels, PhD
Michiel Rienstra, MD, PhD
Harry J.G.M. Crijns, MD, PhD
Marc A. Vos, PhD
Isabelle C. van Gelder, MD, PhD
Frits W. Prinzen, PhD
Mathias Meine, MD, PhD
Alexander Maass, MD, PhD
Kevin Vernooy, MD, PhD

In Response:

We thank Dr Vereckei for his interest in our article.[1] In his letter, he states that QRS area does not have added value in left bundle branch block (LBBB) or non-LBBB patients separately. However, this is not what can be concluded from our study. Indeed, we stated that the clinically most relevant subpopulation of cardiac resynchronization therapy (CRT) patients currently are those that do not have a Class I indication for CRT, as uncertainty about benefit or harm exists in this population. However, our results do show that QRS area is useful for stratification of outcomes to CRT in both LBBB and non-LBBB subpopulations. For this we would like to draw attention to Figure 3C and 3D of the article, which show highly significant separation of the survival curves between patients with QRS area above and below the median value in both LBBB and non-LBBB patients. Statistical analysis revealed that QRS area provides even better association with outcome compared with the combination of QRS duration and the presence of LBBB. These findings were recently supported by results from a prospective Dutch multicenter, multimarker study[2] and a large retrospective database from Duke University.[3]

Dr Vereckei claims that their novel ECG dyssychrony marker may be as strong a predictor of CRT response as QRS area. Their marker consists of the time from onset of the QRS to the intrinsicoid deflection in V_1, V_5, aVL, and aVF.[4] We think that it is too early to make such strong statement based on a relatively small (124 patients) single-center study. Moreover, their method depends on subjective manual measurements. Similar to the assessment of QRS morphology[5] and duration,[6] this creates considerable interobserver variability. This is supported by their reported interobserver disagreement in 12 of 124 patients in their analysis.

QRS area on the contrary has a low variability because in the regions of uncertainty (onset and end of QRS complex), amplitudes are low. Although QRS area was measured semiautomatically in our study, it has the potential to be measured completely automatically in the current ECG systems because these systems already determine QRS onset and end, and contain the software to convert the 12-lead ECG into the Frank vectorcardiogram.

In this light, we like to position QRS area as a standalone marker. Only a prospective study is missing to advocate QRS area as part of guidelines for selection of CRT patients.

ARTICLE INFORMATION

Affiliations

Department of Cardiology, Maastricht University Medical Centre (A.M.W.v.S., H.J.G.M.C., K.V.). Department of Cardiology, University Medical Centre Utrecht (I.t.H., M.M.). Department of Cardiology, University of Groningen, University Medical Centre Groningen (M.K., M.R., I.C.v.G., A.M.). Department of Physiology, Cardiovascular Research Institute Maastricht (CARIM), Maastricht University (E.B.E., H.J.G.M.C., F.W.P., K.V.). Department of Physiology, Department of

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Medical Physiology, University of Utrecht (M.A.V.). Department of Cardiology, Radboud University Medical Centre, Nijmegen, The Netherlands (K.V.).

Disclosures

None.

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