Author’s response to reviews

Title: Local electrogram delay recorded from left ventricular lead at implant predicts response to cardiac resynchronization therapy: retrospective study with 1 year follow up

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Author’s response to reviews: see over
Dear Prof. Bharat Kantharia

Thank you for reviewing our manuscript: *Local electrogram delay recorded from left ventricular lead at implant predicts response to cardiac resynchronization therapy: retrospective study with 1 year follow up*, and your valuable comments. We send the revised manuscript and responses to the comments.

Editorial request:

The statement of Ethics committee approval in the methods section was corrected according to the editorial request.

Reviewer 1

Comment 1

There are different ways how to measure local ventricular electrogram. Probably, the most accurate definition of local activation time is the point where intrinsicoid (fastest) deflection crosses the isoelectric line (according Josephson’s textbook of Electrophysiology). Almost the same results can be obtained when the definition is based on the local minimum of the first derivative of unipolar signal that is not, however, very practical. On the other hand, first deflection of EGM is usually farfield signal, especially when the myocardium is activated through cell by cell conduction instead of His-Purkinje system, which is typical for CRT patients.

In our study, the first sharp spike was used for practical purposes because the readings can be performed quickly and reproducibly, especially when measurements and decision making have to be performed in real-time. According to our experience, the difference between isoelectric crossing of intrinsicoid deflection and the timing of the first sharp spike is not usually bigger than 3 msec, because the fastest deflection inherently starts with this first sharp spike. The other reason why we have chosen such definition was to make the readings as close as possible to those achievable by ICD programmers which may be used in future studies.

Comment 2
As obvious in other studies, longer QRS duration at baseline is associated with better CRT response and longer QLV is achievable in non-RBBB patients with the wider QRS. However, not only QLV/QRSD ratio but also QLV interval was independent predictor of CRT response in our study, specifically, QLV interval outperformed QRSD in stepwise forward multivariate analysis (see Table 3, Model I). It indicates that QLV interval per se conveys additive prognostic information on top of simple QRSD.

Reviewer 2

Comment 1

The local bipolar electrograms were recorded by the technician using EP recording system (Biotronik EP Control) after the final position of the left ventricular lead was reached and the electrode was fixed. The measurements were carefully visually inspected by single observer (dedicated physician) and manually edited when necessary. Print outs of all patients were archived. The methodology of EGM reading is explained above in comments to reviewer 1.

We have changed the methods section according to your suggestion.

Thank you for your time and consideration.

Sincerely,

Rostislav Polasek, MD

Liberec, April 20th, 2012.