

Reproducibility and repeatability of identifying latest electrical activation during mapping of coronary sinus branches in CRT recipients

Mads Kronborg¹, Charlotte Stephansen¹, Jens Kristensen¹, Christian Gerdes¹, and Jens Nielsen¹

¹Aarhus University Hospital Skejby

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Abstract

Introduction: Studies have shown an association between outcome in cardiac resynchronization therapy (CRT) and longer interventricular delay at the site of the left ventricular (LV) lead. Targeted LV lead placement at the latest electrically activated segment increases LV function further as compared with standard treatment. We aimed to determine reproducibility and repeatability of identifying latest electrically activated segment during mapping of all available CS branches in patients receiving CRT. **Methods:** We included 35 patients who underwent CRT implantation with protocolled mapping guided LV lead implantation aiming for the site of latest electrical activation. Three different doctors experienced in electrophysiology and implantation of CRT devices independently measured time interval from the local bipolar right ventricular (RV) electrogram (EGM) to the local unipolar LV EGM at all mapped sites (RV-LV). The segment with the latest electrical activation was defined as target segment (TS) and the CS tributary containing TS was defined as target vein (TV). Weighted Kappa statistics with 95% confidence intervals were computed to assess intra-and inter-observer agreement for TS and TV. **Results:** We mapped 258 segments within 131 veins. Weighted kappa values for repeatability were 0.85 (0.81-0.89) for TS and 0.92 (0.89-0.93) for TV, and weighted kappa values of inter-observer agreement ranged from 0.70 (0.61-0.73) to 0.80 (0.76-0.83) for TS and 0.73 (0.64-0.78) to 0.86 (0.83-0.89) for TV among all three observers. **Conclusion:** The reproducibility and repeatability of identifying latest electrically activated segment during mapping of all available CS branches in patients receiving CRT ranges from good to very good.

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