

Simultaneous orthogonal bipole mapping compared to conventional electrode configurations and impact on ablation strategies: results from a real world observational study

L. Fiedler¹, F. Roithinger¹, J. Roca², F. Lorgat³, A. Roux⁴, J. Lacotte⁵, A. Miller⁶, D. Steven⁷

¹LK Wiener Neustadt Abteilung für Kardiologie und Nephrologie, Wiener Neustadt, Austria, ²Hospital Clinic de Barcelona, Barcelona, Spain, ³Christiaan Barnard Memorial Hospital, Cape Town, South Africa, ⁴Pole Sante Republique (Clermont-Ferrand), France, ⁵Institute Cardio Paris-Sud – Institut Jacques Cartier, France, ⁶Abbott, Minneapolis, USA, ⁷University Hospital Köln, Cologne, Germany

BACKGROUND

3D mapping systems are pivotal to identify low voltage areas and to define ablation strategies. In this context, high-density multipolar mapping catheters with varying electrode configurations are used for accurate myocardial substrate definition. High density mapping using a grid shaped catheter allows for use of simultaneous analysis of adjacent orthogonal bipolar signals that may assist in more accurate substrate characterization and ablation strategy decisions.

PURPOSE

This was a prospective, multicenter observational study to characterize the utility of electroanatomical mapping with a high density grid-style mapping catheter (HD Grid) in subjects undergoing catheter ablation for persistent atrial fibrillation (PersAF) or ventricular tachycardia (VT) in real-world clinical settings.

METHODS

Mapping was performed with Ensite Precision cardiac mapping system (Abbott, MN) and the HD Grid catheter to generate high-density maps of cardiac chambers in order to assess the potential influence of the simultaneous orthogonal bipole configuration on PersAF and VT ablation strategies. Differences in substrate identification between simultaneous orthogonal bipole configuration and standard along-the-spline electrode configuration, and potential effects on ablation strategies were investigated.

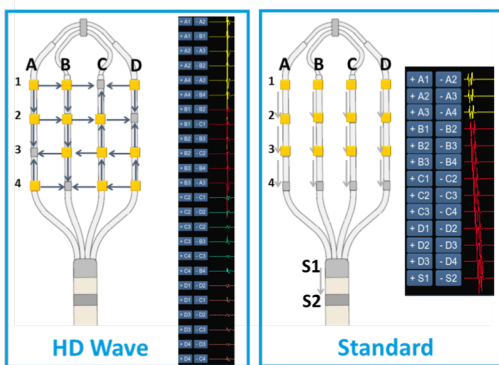


Figure 1. Illustration of HD Grid with simultaneous orthogonal bipole (HD Wave) and standard along-the-spline electrode configuration

RESULTS

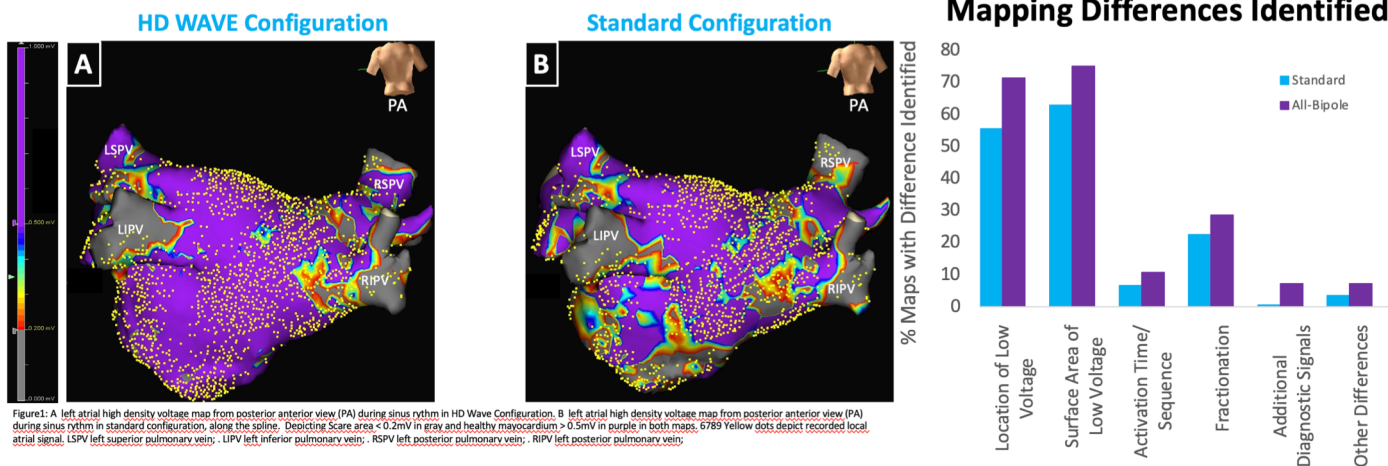
Subjects:

- 367 subjects ablated between 01/19-04/20
- 333 PersAF (mean: 64.1yr, 75%male)
- 34 VT (mean: 64.3yr, 85.3%male)
- 494 maps PersAF and 57 in VT

Standard Configuration Comparison

57.8% of maps had differences identified by HD Wave

34.3% change in ablation strategy



CONCLUSIONS

The HD grid catheter combined with simultaneous orthogonal bipole configuration can define myocardial substrate more accurately compared to standard along-the-spline configuration. The difference in substrate identification has potential impact on ablation strategy.

DISCLOSURES

A Miller is an employee of Abbott.