

Comparison of geographic workflow preferences with real-time dynamic regional mapping data during catheter ablation

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Introduction: The clinical benefit of multielectrode high-density (HD) mapping during catheter ablation has been an area of active research. One advantage of HD mapping is improved sensitivity which can lead to better visualization and substrate delineation during the procedure. In addition to the advantages offered by the multielectrode grid mapping catheter (HD Grid), a novel software enable the display of beat-to-beat, dynamic regional mapping data from the current location of HD Grid in real-time (LiveView). The optimal settings and workflows to incorporate the dynamic data into routine ablation procedures have not been explored.

Purpose: To examine the common settings and workflow patterns among operators from different geographies when using dynamic mapping.

Methods: Observational procedural data including procedure time, total RF time, workflow preference, and fluoroscopy time, were prospectively collected from operators across Europe, the U.S., and Asia Pacific countries from May to September 2020. Cases from both catheter ablation of atrial and ventricular arrhythmias were included in the analysis.

Results: A total of 754 cases were collected (428, 133, and 193 cases from Europe, the U.S., and the Asia Pacific region, respectively). The most commonly reported indication across all three geographies was de novo paroxysmal atrial fibrillation (223/754, 30.0%). A steerable sheath was more frequently used with the mapping catheter in Europe and U.S. compared to Asia Pacific countries. Contrary to cases from the U.S. and Asia Pacific countries where the double transseptal approach was the preferred technique for left atrial procedures (78.8% and 55.3%, respectively), the single transseptal approach was more commonly observed in European cases (233/428, 54.4%). Visualization of real-time mapping data after creation of traditional full-chamber maps were commonly observed in all three geographies. Regardless of geography, the CS catheter was commonly used a reference electrode; and the most common map appearance settings for interior projection, exterior projection, and interpolation was 7, 7, and 7 respectively. Voltage cutoff of 0.1 mV, range from 0.01 to 1.5 mV, was most frequently observed for delineating scar in atrial arrhythmia cases analyzed in this dataset.

Conclusions: While there is a geographical difference in ablation workflow, common settings and patterns can be observed in all three regions. This data suggests that minimal workflow changes are required to incorporate the use of dynamic data into routine procedures. Adaptation of LiveView can help improve procedure efficiency and efficacy by reducing the need for full chamber maps, identifying areas that were under ablated, and confirming ablation endpoints. Further control study examining procedure efficiency and efficacy associated with dynamic mapping may be warranted.