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The Influence Of The Direction Of LV Activation On Spatial Distribution Of Conduction Slowing: Implications For Substrate Mapping Of VT

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Abstract:

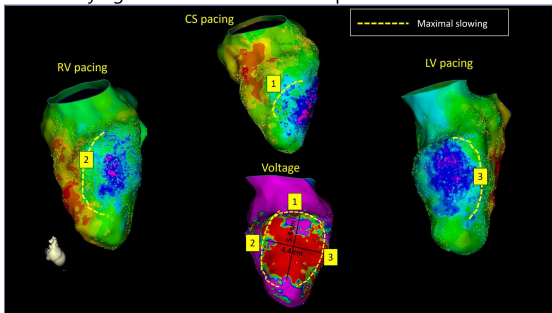
Background: In scar-related VT, areas of maximal activation slowing (MAS) during sinus rhythm often co-localize with the VT isthmus. However, it is unknown whether this mapping strategy can identify all potential isthmus sites for the purpose of guiding ablation, or that this requires stimulation of the LV from different sites.

Objective: To determine the effect of LV stimulation site on the location of MAS and the VT isthmus.

Methods: In 15 swine with chronic anterior (n=10) and inferior (n=5) infarction, LV was mapped during stimulation from 3 sites: atrial (CS), RV and LV using Carto 3[®] and a multielectrode mapping catheter (Octaray™, Biosense Webster). In each heart, the region of MAS was evaluated in respect to site of stimulation. VTs were mapped using activation or entrainment.

Results: The location of MAS was influenced by the site of stimulation and localized to the region in which the wavefront first interacted with the infarct (**Figure**). It often corresponded with bipolar voltage amplitude <0.5mV. The distance between regions of MAS ranged between 8 and 46 mm (CS vs LV: 22.6 ± 10.4 mm; CS vs RV 12.2 ± 8.3 mm; RV vs LV 28.2 ± 7.6mm; P<0.01 for all). In 16/18 (88.9%) VTs, isthmus sites co-localized with regions of MAS identified during stimulation from single or multiple sites. In contrast, only 56.2% isthmus sites were localized to regions of MAS during atrial pacing.

Conclusion: The location of MAS is influenced by the site of stimulation. This data suggests that substrate mapping during sinus rhythm may be insufficient for identifying all isthmus sites. This requires stimulation of the LV from multiple directions.



Author Disclosure Information:

H. Yavin: Nothing relevant to disclose.

Category (Complete): Mapping & Imaging

Keywords (Complete): V -> Ventricular arrhythmia ; C -> Cardiac mapping

Additional Information (Complete):

Proof of Concept/Innovation : True

At the conclusion of this presentation, attendees will be able to: (Maximum character limit 250)

***Learning Objective:** : to utilize different wavefronts for substrate mapping of VT

Abstract Awards (Complete):

Fellow with the Highest Scoring Abstract Award : True

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