

A new electrocardiographic marker with higher sensitivity and specificity for epicardial location of posteroseptal accessory pathway

Badiu A.¹; Iorgulescu C.¹; Bogdan S.¹; Radu A.¹; Paja S.¹; Ene E.¹; Cojocaru C.¹; Nastasa A.²; Vatasescu R.¹

¹Emergency Clinical Hospital Floreasca, Bucharest, Romania

²Elias University Hospital of Bucharest, Bucharest, Romania

Funding Acknowledgements: Type of funding sources: None.

Introduction: Catheter ablation of accessory pathways (AP) located in the posterior pyramidal space are often challenging due to its anatomical complexity. Scarce of data are available about the ECG features that might indicate when an epicardial approach is required in the ablation of the posteroseptal AP.

Objective: The purpose of this retrospective study was to describe the electrocardiographic features of posteroseptal AP which have been successfully ablated with epicardial approach and identify electrocardiographic predictors for epicardial AP location.

Methods: The 12 leads ECG of 75 patients with posteroseptal accessory pathways who were successfully ablated were retrospectively analyzed. ECG features for epicardial location described already in published studies have been considered (negative delta wave in DII, positive delta wave in aVR, high amplitude S wave in V6). Additionally the characteristics of the initial 40 ms of the delta wave in lead V1 (measured from the earliest QRS deflection in 12 leads) during full pre-excitation have been investigated.

Results: Of 75 patients with posteroseptal AP that undergone catheter ablation, 40 (53.3%) had successful epicardial ablation. An initial isoelectric or biphasic delta wave in lead V1 proved the highest sensitivity (82.5 %) respectively positive predictive value (97 %) and specificity (97 %) for an epicardial location of the AP. Deep S wave in V6 proved lower sensitivity (37.5%) and positive predictive value (68%) but higher specificity (80%) for epicardial location of AP. The specificity and sensitivity for epicardial location of AP of negative delta wave in DII were lower, however it failed to reach statistical significance.

Conclusion: This study shows that an initially isoelectric or biphasic delta wave aspect in lead V1 has a higher specificity, sensitivity and positive predictive value than previously described ECG markers for epicardial location of posteroseptal accessory pathways.