Spatial Extension of His Bundle in the Triangle of Koch in Atrioventricular Nodal Reentrant Tachycardia

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Backgrounds: The critical slow conduction of atrioventricular nodal reentrant tachycardia (AVNRT) is located in the triangle of Koch. RF application in this area has a risk of atrioventricular block.

Methods: We studied the spatial distribution of the recording sites of His bundle electrocardiogram (HBE) during sinus rhythm (SR) and the area of the coronary sinus ostium (CS) in 6 AVNRT and 3 AFL (age: 68 ± 2, 4 males), using a 3-dimensional electro-anatomical mapping system (CARTO) and multi-detector computed tomography.

Results: HBE was mapped in the area of 104 ± 66 mm² and the area of CS was 72 ± 52 mm². The maximum (max HB-CS) and the minimum (min HB-CS) distance between the HB and CS were 31.0 ± 4.1 and 20.0 ± 2.0 mm. The ratio of min HB-CS to max HB-CS was 64.8 ± 4.8 %. Without any complication, all the patients underwent successful ablation at the points where HBE was not recorded during SR.

Conclusions: HBE is recorded in the considerably wide extent of area during SR. Prior to ablation, it is essential to confirm that HBE is invisible not only during tachycardia but also during SR.

Keywords: AVNRT, ablation, HBE