Distribution of the Origin Far from His Bundle Area in Adenosine Triphosphate Sensitive Atrial Tachycardia

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Introduction: The origin of adenosine-triphosphate (ATP)-sensitive atrial tachycardia (AT) is reported to be adjacent to the His bundle (HB). However, different origins of the AT foci have been reported in previous studies.

Methods: We performed electrophysiological study of AT with catheters placed in a normal fashion (high right atrium, HB, coronary sinus, and right ventricle) along with electroanatomical mapping of both atria and aortic cusps. ATs in which earliest activation was recorded at the HB electrode and which were terminated by rapid infusion of ATP (4.7 ± 3.0mg) were included. We reviewed the data in 10 consecutive cases.

Results: All tachycardias were abolished by focal radiofrequency catheter ablation. The successful ablation sites were the non-coronary cusp (n=5), tricuspid annulus (n=3), right atrial septal wall (n=1), and left atrial septal wall (n=1). These successful ablation sites were earlier than that of the HB by 28.2 ± 20.0 msec, 25.0 ± 16.0 msec, 35.0 msec, and 74.0 msec, respectively. In 4 cases (40%, both side of atrial septum, tricuspid annulus) of these 10 cases, the distance between the sites and the HB were greater than 10 mm.

Conclusion: When treating ATP-sensitive AT, it is important to perform detailed mapping that includes electroanatomical mapping not only near HB but of the bilateral atria even if the earliest atrial activation is recorded at the HB.

Keyword: atrial tachycardia