Atrial Premature Beats in Patients with Atrial Fibrillation Assessed by Non-Contact Mapping System

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Background: Information about atrial premature beats (APBs) in patients with atrial fibrillation (AF) assessed by non-contact mapping system is limited. Methods: APBs mapping was performed in 42 patients with paroxysmal AF (n=35) and persistent AF (n=7) by deploying non-contact mapping balloon in left atrium (LA). APBs lasting more than 3 beats were mapped. Results: APBs were observed in 60\% (25/42) of AF patients. A total of 70 spontaneous APBs were analyzed. The median number of APBs was 5 with range of 3-101. Analysis of APBs showed there were several origins within APBs. Only 34\% of the APBs consisted of a single origin, while 47\% consisted of two disparate regional or biatrial origins and 19\% consisted of more than three origins. The locations of non-PVs foci included right atrium or SVC(33\%), interatrial septum(17\%), left atrial roof(22\%), inferior LA(18\%), anterior LA(6\%), posterior LA(4\%). After PV isolation, patients with more than two non-PV foci exhibited a trend towards higher recurrence rate of AF than patients with less than one non-PV focus (P = 0.14). Conclusions: Most of the APBs in patients with AF consisted of several origins. Patients who had several non-PVs foci might have higher recurrence rate of AF. Keywords: atrial fibrillation, non-PV foci, non-contact mapping