Initiation of atrial fibrillation by ectopic beats originating from the superior vena cava: electrophysiological characteristics and results of radiofrequency ablation.

謝敏雄

Tsai CF;Tai CT;Hsieh MH;Lin WS;Yu WC;Ueng KC;Ding YA;Chang MS;Chen SA.

摘要

Abstract

BACKGROUND: The superior vena cava (SVC) has cardiac musculature extending from the right atrium. However, no previous study in humans has given details regarding the ectopic foci that initiate paroxysmal atrial fibrillation (PAF), which may originate from the SVC. METHODS AND RESULTS: A total of 130 patients with frequent attacks of PAF initiated by ectopic beats were included. Eight patients (6%) had spontaneous AF initiated by a burst of rapid ectopic beats from the SVC (located 19+/-7 mm above the junction of the SVC and right atrium), which was confirmed by multiplane angiographic and intracardiac echocardiographic visualization and was marked by a sharp SVC potential preceding atrial activity. During initial repetitive discharges, the group with SVC ectopy had a higher incidence of intravenous conduction block than the group with pulmonary vein ectopy (75% versus 37%; P=0.03). The activation time of the earliest intracardiac ectopic activities relative to ectopic P wave onset was significantly shorter in the SVC ectopy than the pulmonary vein ectopy group (37+/-15 versus 84+/-32 ms; P<0. 001). After 5+/-3 applications of radiofrequency energy, AF was eliminated. SVC angiography after ablation revealed a local indentation of the venous wall in one patient. Two patients manifested coexisting sinus rhythm and a "focal" fibrillating activity confined inside the SVC after radiofrequency ablation. During a follow-up period of 9+/-3 months, all 8 patients were free of antiarrhythmic drugs, without tachycardia recurrence or symptoms of SVC obstruction. CONCLUSIONS: Ectopic beats initiating PAF can originate from the SVC. A radiofrequency current delivered to eliminate these ectopies is a highly effective and safe way to prevent PAF.