Effect of phenylephrine on focal atrial fibrillation originating in the pulmonary veins and superior vein cava

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摘要

Abstract

OBJECTIVES

This study was aimed at evaluating the effects of phenylephrine infusion on the occurrence of focal atrial fibrillation (AF).

BACKGROUND

Paroxysmal AF can be initiated by ectopic atrial beats originating in the pulmonary vein (PV) or superior vena cava (SVC). The effect of change in autonomic tone on this focal AF is unknown.

METHODS

This study included 12 patients with frequent bursts of AF documented by 24-h Holter monitoring. The number and coupling interval of spontaneous ectopic activity and bursts of AF were evaluated for 1 min before and after phenylephrine (2 to 3 μg/kg) injection.

RESULTS

After detailed mapping, four patients had a focus located in the left superior PV, six in the right superior PV and two in the SVC. In 10 patients with AF foci originating in the PVs, the frequency of ectopic activity (19.5 ± 27.4 vs. 11.4 ± 22.9 beats/min, p = 0.059) was reduced as well as AF bursts (14 ± 3 vs. 1.8 ± 2.7 bursts/min, p = 0.005) before versus after phenylephrine injection; the minimal coupling interval of ectopic

activity and AF bursts became longer compared with baseline. The maximal percent increase in sinus cycle length after phenylephrine injection was significantly greater in patients with complete suppression of AF compared with those with partial suppression (43 ± 19 vs. 14 ± 5%, p = 0.01). However, no significant effect of phenylephrine on AF originating in the SVC was found.

CONCLUSIONS

Change in autonomic tone induced by phenylephrine injection was effective in suppressing focal AF originating in the PVs but not in the SVC