521

ANTIARRHYTHMIC PROPERTIES OF N-3 POLYUNSATURATED FATTY ACIDS IN A DOG MODEL OF VAGALLY-MEDIATED ATRIAL FIBRILLATION

JF Sarrazin, J Kingma, P Daleau, I Plante, F Molin

Quebec City, Quebec

BACKGROUND: Treatment of paroxysmal atrial fibrillation (AF) presents a significant clinical challenge. N-3 polyunsaturated fatty acids (PUFA) decrease the incidence of sudden cardiac death in patients. An antiarrhythmic effect has been proposed to explain this observation. At the ventricular level, blockade of sodium and calcium ionic currents has been documented. In the present study we tested the hypothesis that the antiarrhythmic properties of n-3 PUFA could also play a role at the level of the atrium and thereby limit AF.

METHODS: Twenty-five dogs with vagally-mediated atrial fibrillation were studied. Eight dogs were pretreated with 1.2 g PO of n-3 PUFA daily for 14 days. Seventeen dogs were used as controls. Hemodynamic and electrophysiologic parameters were recorded; in addition the number of episodes of AF induced by 1, 2 or 3 extrastimuli and bursts was evaluated. Sustained AF was defined as an induced AF of greater than 1 minute duration.

RESULTS: In pretreated dogs, serum n-3 PUFA levels were markedly increased from 2.16±0.37% by weight to 9.03±0.65% ($p < 0.00001$) with a desirable value above 7.20%; however no change was observed with respect of either hemodynamic or electrocardiographic parameters. Atrial effective refractory period at baseline and during vagal stimulation were not affected by pretreatment with n-3 PUFA. The number of episodes of sustained AF in the pretreated group was reduced by 79% with the extrastimulus technique (10.5% vs 48.9%, $p < 0.02$) and by 42% with burst induction (22.5% vs 38.8%, $p = 0.034$).

CONCLUSIONS: Pretreatment with n-3 PUFA afforded significant antiarrhythmic properties in a dog model of vagally-mediated AF.

DNC

Quebec Heart Institute Foundation