ACC.11
60th Annual Scientific Session & Expo

E85
JACC April 5, 2011
Volume 57, Issue 14

CARDIAC ARRHYTHMIAS

CHRONIC OMEGA 3 POLYUNSATURATED FATTY ACID SUPPLEMENTATION IN HUMANS ATTENUATES ATRIAL MECHANICAL STUNNING AFTER TERMINATION OF ATRIAL ARRHYTHMIAS: REVERSAL OF TACHYCARDIA MEDIATED ATRIAL CARDIOMYOPATHY WITH FISH OILS

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Clinical Electrophysiology -- AF Mechanisms
Abstract Category: 26. Clinical Electrophysiology–Supraventricular Arrhythmias
Session-Poster Board Number: 1088-402

Authors: *Saurabh Kumar, Fiona Sutherland, Miriam Wheeler, John Morgan, Paul Sparks, The Royal Melbourne Hospital, Melbourne, Australia*

Background: Atrial mechanical "stunning" is a form of atrial tachycardiomopathy responsible for lack of improvement in cardiac output as well as thromboembolic complications after termination of atrial arrhythmias. Omega-3 polyunsaturated fatty acids in fish oils have been shown to attenuate atrial structural remodeling in dog models of atrial cardiomyopathy. We postulated that chronic fish oil ingestion in humans reduces atrial mechanical stunning after termination of atrial arrhythymias.

Methods: Patients undergoing termination of persistent AF via cardioversion or persistent atrial flutter via cardioversion/ablation were recruited into a control or a fish oil group. The latter were prescribed 2g/day of fish oil for ≥1 month prior to the procedure. Left atrial appendage emptying velocity and contraction (fractional area change), and spontaneous echocardiographic contrast before and after termination was compared between the two groups. A mean fall in emptying velocity ≥10 cm/s post-reversion was considered significant. Stunning was defined as a decrease in emptying velocity by ≥20% post-reversion.

Results: Forty one patients (22 controls, 19 fish oil) were studied (persistent AF 71%, flutter in 29%). There were no significant difference in age (61±11 yrs), incidence of structural heart disease (18%), left atrial area (25±6 cm2) or left ventricular function (58±8%). Mean duration of arrhythmia was longer in fish oil group (16 vs. 9 months, P=.21). After fish oil intake for mean 56 d (median 38 d), the following were noted favouring the fish oil group (i) 2 fold higher plasma omega 3 levels (ii) attenuated fall in emptying velocity (8% vs. 37%, P=.012) (iii) lower incidence of significant fall in emptying velocity (26% vs. 68%, P=.007) (iv) attentuated fall in appendage contraction (50% vs. 6%, P<.001) (v) lower incidence of atrial mechanical stunning (32% vs. 73%, P=.006) and (v) lower incidence of new or increased spontaneous echo contrast (28% vs. 64%, P=.024).

Conclusions: Chronic fish oil ingestion attenuates atrial mechanical stunning after reversion of atrial arrhythmias in humans. This suggests that they may attenuate/reverse tachycardia mediated atrial cardiomyopathy.