

Protection against Ischemic Arrhythmias with Linoleic Acid Rich Diets in Isolated Perfused Rat Hearts Is Not Mediated by Prostacyclin

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The antiarrhythmic mechanism of diets rich in linoleic acid (LA) in rats is assumed to be due to an alteration in myocardial prostanoic (PG) biosynthesis. Pretreatment with non-specific prostanoic inhibitors has given contradictory results. The effect of flurbiprofen, a more specific inhibitor was therefore studied.

160 male Lew rats (8 weeks old) were fed semi-synthetic diets (40% energy fat) with a polyunsaturated to saturated ratio (P/S) of 0.3 (the average Scottish diet, low LA) or 2.0 (an achievable ideal, high LA) for 8 weeks. Ischemic arrhythmias were monitored on an 8 channel Langendorff system (allowing simultaneous perfusion with and without drug). Flurbiprofen was administered in the perfusate as its sodium salt. 10-5M was found to be the min. dose of flurbiprofen required to give maximal inhibition of prostacyclin (PGI₂), the major PG in the heart. The antiarrhythmic effect with LA rich diets was maintained after drug treatment.

	- Flurbiprofen		+ Flurbiprofen	
P/S	0.3	2.0	0.3	2.0
VF	46%*	14%*	60%‡	25%‡
VT	91%†	57%†	86%§	56%§

*, †, § p<0.05. ‡ p<0.005.

In conclusion PGI₂ is not involved in the antiarrhythmic mechanism of LA rich diets. 465

Comparison of the Effects of an Avocado-enriched and American Heart Association Diets on Lipid Levels

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Avocados are a rich source of monounsaturated fat (MFA) with a favourable P:M:S ratio (1:4:1). The effect of regular ingestion on lipid levels is unknown. A randomized trial was conducted comparing an avocado enriched diet (AE) (30-35% fat, 10-15% avocado) and the American Heart Association Phase II diet (AHA) on effectiveness in improving blood lipid levels. 15 subjects, 35 to 65 years of age, with initial serum cholesterol (SC) between 200 and 300 mg/dl, were allocated AE then AHA, or AHA then AE. Each phase lasted 3 weeks. Both diets were found to lower SC compared to baseline. AE was more effective with a 7.2% decrease in SC (p<0.05). Apo B decreased 8% with AE, but insignificantly with AHA. The HDL did not change on AE, but decreased 13.4% on AHA. The predicted decrease in SC on AE was underestimated by 12 mg/dl with Hegsted's equation. Conclusions: 1) AE is more effective than AHA in decreasing SC, and unlike AHA does not decrease HDL levels. 2) MFA has an independent effect on lowering SC. 799

Ultrastructural and Biochemical Evidence of Induction of Cardiac Lipofuscinosis by Short-term Intake of ω -3 Fatty Acids in Rats

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Cardiac lipofuscinosis occurs as a result of the long-term intake of fish oil rich in ω 3 polyunsaturated fatty acids (PUFAs) [e.g., eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA)]. We investigated the short-term effect of ω 3-PUFA intake on the cytoplasmic accumulation of lipofuscin in the heart. Rats were fed either a diet supplemented with 5% safflower oil (SF), sardine oil (SD, EPA>DHA), or lamprey oil (LM, EPA<DHA) for 4 weeks. Ultrastructural examination of ventricular myocytes revealed a marked accumulation of lipofuscin-like materials in rats fed SD, whereas this change was barely detectable in rats fed SF (SD>LM>SF). The myocardial vitamin E content was reduced both in rats fed SD and LM. The myocardial content of organic-soluble autofluorescence compounds separated by

reversed-phase HPLC correlated well with the ultrastructural degree of cardiac lipofuscinosis (SD>LM>SF). It can be concluded that cardiac lipofuscinosis can occur after the short-term intake of ω 3-PUFAs. The replacement of membrane fatty acids by ω 3-PUFAs accelerates cardiac lipid peroxidation, and this may be involved in the pathogenesis of fish oil-induced cardiac lipofuscinosis. 1440

The Cholesterol-raising Factor from Boiled Coffee Does Not Pass a Paper Filter

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Boiled coffee raises LDL cholesterol. We have tested the effect on serum cholesterol and the lipid content of boiled coffee before and after filtration through commercial paper coffee filters. Sixty-two healthy volunteers consumed six 150 ml-cups of boiled-and-filtered coffee/day for 17 days. Then they were randomly divided into three groups, which for the next 79 days received six cups of either boiled coffee (lipid content 1.0 g/l), boiled-and-filtered coffee (0.02 g lipid/l) or no coffee but only juice, mineral water and herb tea.

Serum total cholesterol levels rose by 0.43 mmol/l (17 mg/dl; 95% CI 0.06-0.80), and LDL cholesterol by 0.42 mmol/l (95% CI 0.09-0.75) on boiled relative to boiled-and-filtered coffee. No significant effects were found of boiled-and-filtered versus no coffee. We propose that paper filters of the type used for drip coffee retain the lipid present in boiled coffee and in that way remove the hypercholesterolemic factor. 1523

Effect of Caffeine on Ambulatory Blood Pressure

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Acute administration of caffeine (C) to C-naive subjects transiently increases BP. The effect of acute or chronic ingestion of C on ambulatory (A) BP has not been studied. Accordingly, we performed 12 hour daytime ABP recordings in 25 C-naive subjects (age 21-43 years) during an initial placebo (P) period and over 5 days of repeated C administration. The study was double-blind for C vs P and for outcome measurements. C 200 mg or P were administered at 0 and 4 hours on each study day. There was a small (P<0.005) increase in mean ABP (mmHg) during the first 2 days of C ingestion (C1 and C2) compared with baseline P values (P1 and P3):

P/C (day)	P1	P3	C1	C2	C3	C5
SBP	120	121	124	122	121	121
DBP	74	76	79	78	77	76

Subsequently, tolerance developed and the ABP (C3 and C5) returned to pre-C values. The post-C ABP (119/73) was similar to the pre-C ABP. Mean heart rate fell by 3 bpm (p=0.02) on day C1. Acute administration of C (400 mg/day) transiently increases ABP in C-naive subjects, but tolerance develops within 2-3 days so that chronic C ingestion has no effect on daytime ABP values. 1634

Evaluation of a Magnetic Resonance Imaging Procedure for Quantitating Abdominal Fat Distribution

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To evaluate the ability of magnetic resonance imaging (MRI) to quantitate intraabdominal (IA) and subcutaneous (SC) fat we compared measurements of fat areas by MRI with those obtained by computed tomography (CT) in 11 asymptomatic volunteers. All had a single CT and MRI image at the umbilicus level. A special MRI protocol was used based on a water-fat separation method by which the slice selection routines excite water and fat protons in different positions along the slice select direction. This method performed more reliably than earlier