Long-term fish consumption is associated with protection against arrhythmia in healthy persons in a Mediterranean region-the ATTICA study


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Summary:

The ATTICA epidemiologic study from the Attica area of Greece surveyed 3042 men and women (mostly between the ages of 44 and 55 years) in relation to their intake of fish (source of DHA/EPA omega-3 fatty acids) as determined by a validated food-frequency questionnaire. All subjects entered were without known cardiovascular disease and underwent assessment via 12-lead electrocardiography (ECG) which included measurement of the QTc (see below). This particular measurement was of interest since prolongation of the QTc interval has been implicated as a major independent risk factor for cardiovascular-mediated mortality.

Compared to non-consumers of fish, those who consumed more than 300g of fish per week had a significantly lower QTc (by 14%) after adjusting for various lifestyle-related parameters (including physical activity, body mass index, smoking, etc) and other confounding variables. With respect to the likelihood of having QTc intervals > 0.45 seconds, those consuming = 300 g fish/week had a 29% lower likelihood as compared to non-consumers of fish. The authors conclude that the long-term consumption of fish is associated with a significantly lower QTc interval in those people without any evidence of cardiovascular disease and suggest that fish intake appears to provide anti-arrhythmic protection at the population level.

QT interval and QTc: The QT duration (interval) can be readily measured by the 12-lead electrocardiography (ECG) along with other parameters. Abnormal QT intervals are known to be implicated in an increased risk for serious ventricular arrhythmias and sudden cardiac death. The
QT interval is measured from the beginning of the so-called QRS complex to the end of the Trace. A heart rate connected QT (the QTc) can be calculated-connected by using Bazett's rate as done by the authors of the present paper.

Dr. Holub's Comments:

For single fish servings weighing 4 oz (114 g) or 6 oz (171 g) per serving, 300 g of fish per week would represent approximately 1.8 to 2.6 fish servings per week. It is noted that such intakes would reflect the lowest intakes of fish in the highest fish-consuming group since the highest fish consumers were ingesting more than 300 g of fish per week.

While the authors did not directly quantify DHA/EPA omega-3 fatty acid intakes in the form of fish, it can be estimated that 300 g of fatty fish per week would provide an average daily intake of DHA/EPA (combined) of approximately 450-600 mg/day.