

Abstract

JAMA. 1995 Nov 1;274(17):1363-7.

Dietary intake and cell membrane levels of long-chain n-3 polyunsaturated fatty acids and the risk of primary cardiac arrest.

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OBJECTIVE: To assess whether the dietary intake of long-chain n-3 polyunsaturated fatty acids from seafood, assessed both directly and indirectly through a biomarker, is associated with a reduced risk of primary cardiac arrest.

DESIGN: Population-based case-control study.

SETTING: Seattle and suburban King County, Washington.

PARTICIPANTS: A total of 334 case patients with primary cardiac arrest, aged 25 to 74 years, attended by paramedics during 1988 to 1994 and 493 population-based control cases and controls, matched for age and sex, randomly identified from the community. All cases and controls were free of prior clinical heart disease, major comorbidity, and use of fish oil supplements.

MEASURES OF EXPOSURE: Spouses of case patients and control subjects were interviewed to quantify dietary n-3 polyunsaturated fatty acid intake from seafood during the prior month and other clinical characteristics. Blood specimens from 82 cases (collected in the field) and 108 controls were analyzed to determine red blood cell membrane fatty acid composition, a biomarker of dietary n-3 polyunsaturated fatty acid intake.

RESULTS: Compared with no dietary intake of eicosapentaenoic acid (C20:5n-3) and docosahexaenoic acid (C22:6n-3), an intake of 5.5 g of n-3 fatty acids per month (the mean of the third quartile and the equivalent of one fatty fish meal per week) was associated with a 50% reduction in the risk of primary cardiac arrest (odds ratio [OR], 0.5; 95% confidence interval [CI], 0.4 to 0.8), after adjustment for potential confounding factors. Compared with a red blood cell membrane n-3 polyunsaturated fatty acid level of 3.3% of total fatty acids (the mean of the lowest quartile), a red blood cell n-3 polyunsaturated fatty acid level of 5.0% of total fatty acids (the mean of the third quartile) was associated with a 70% reduction in the risk of primary cardiac arrest (OR, 0.3; 95% CI, 0.2 to 0.6).

CONCLUSION: Dietary intake of n-3 polyunsaturated fatty acids from seafood is associated with a reduced risk of primary cardiac arrest.

PMID: 7563561

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