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Blood pressure response to fish oil supplementation: metaregression analysis of randomized trials

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Abstract

Objective: The antihypertensive effect of fish oil was estimated from randomized trials using metaregression analysis. Modification of the blood pressure (BP) effect by age, gender, blood pressure, and body mass index was examined.

Methods: A total of 90 randomized trials of fish oil and BP were identified through MEDLINE (1966-March 2001). Trials with co-interventions, patient populations, non-placebo controls, or duration of < 2 weeks were excluded. A total of 36 trials (50 strata) were included, 22 of which had a double-blind design. Original reports were retrieved for data collection on sample size, study design, duration, fish oil dose, BP changes and baseline characteristics of trial populations. Pooled BP estimates were obtained by metaregression analysis, weighted for trial sample sizes. Stratified analyses according to population characteristics were performed.

Results: Intake of fish oil was high in most trials (median dose: 3.7 g/day). Fish oil reduced systolic BP by 2.1 mmHg [95% confidence interval (CI): 1.0, 3.2; P < 0.01] and diastolic BP by 1.6 mmHg (95% CI: 1.0. 2.2; P < 0.01). Restricting the analysis to double-blind trials yielded BP reductions of 1.7 mmHg (95% CI: 0.3, 3.1) and 1.5 mmHg (95% CI: 0.6, 2.3), respectively. BP effects tended to be larger in populations that were older (> 45 years) and in hypertensive populations (BP >or= 140/90 mmHg).

Conclusions: High intake of fish oil may lower BP, especially in older and hypertensive subjects. The antihypertensive effect of lower doses of fish oil (< 0.5 g/day) however, remains to be established.

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