Review Article

Fish consumption and risk of myocardial infarction: a systematic review and dose-response meta-analysis suggests a regional difference

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\textbf{ABSTRACT}

Limited evidence suggests that the association between fish consumption and risk of cardiovascular disease may be confounded by some regional-related factors. We aimed to quantify the association of fish consumption with risk of myocardial infarction (MI) and to clarify the shape of the dose-response relation in Western and Asian countries. A systematic literature review was performed in PubMed and Scopus from inception to January 2018. Prospective observational studies reporting risk estimates of MI for 3 or more quantitative categories of fish intake were included. A random-effects dose-response meta-analysis was conducted. Eleven prospective cohort studies, comprising a total of 398,221 participants and 8468 cases of MI, were analyzed. A significant inverse association was found for the highest compared with the lowest category of fish intake (relative risk: 0.73, 95\% confidence interval: 0.59-0.87; $I^2 = 72\%$) and for a 15-g/d (105 g/wk, approximately equal to a 1 serving/wk) increment in fish consumption (relative risk: 0.96, 95\% confidence interval: 0.94-0.99; $I^2 = 65\%$). A subgroup analysis showed a significant inverse association only in the subgroup of Asian studies as compared to Western studies. A nonlinear dose-response analysis suggested a linear decrement in the risk with the increase in fish consumption in the analysis of Asian studies. A modest U-shaped association was observed in the analysis of Western studies. In conclusion, higher fish consumption was associated with a lower risk of MI. However, considering the observed regional difference in this association, further observational studies are needed to provide more detailed explanations about this difference.

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Abbreviations: CVD, cardiovascular diseases; CI, confidence interval; CHD, coronary heart disease; MI, myocardial infarction; PUFA, polyunsaturated fatty acid; RR, relative risk.

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