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Fish Consumption in Relation to Stroke Risk

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In the Twin Veterans Study, Bravata et al. [1] reported that fish or seafood consumption was not associated with risk of stroke. In addition to the limitations the authors discussed, we think that their null findings could be at least partially explained by the composite endpoints and misclassification of the exposure.

Similar to some other previous studies, Bravata et al. [1] did not separate hemorrhagic stroke from ischemic stroke. Instead, all types of strokes plus transient ischemic attack were pooled together. Experimental and epidemiological studies suggest that long-chain omega-3 polyunsaturated fatty acids in fish or seafood may have different effects on ischemic stroke and hemorrhagic stroke [2–4]. If we combined these two types of stroke in the analysis, the results would be different according to the ratio of ischemic stroke and hemorrhagic stroke in the outcome. In other words, any potential association between fish or seafood consumption and ischemic stroke could be attenuated by including hemorrhagic stroke in the analysis.

Also, Bravata et al. [1] categorized fish or seafood consumption into 'frequently', 'occasionally' and 'infrequently' based on the information obtained in two questionnaires 13 years apart. Particularly, they used a relatively high cut-off amount – once per week – to define fish or seafood consumption groups. It might lead to misclassification of the exposure and dilute any possible association between fish and stroke. In addition, the authors compared participants who consumed fish or seafood at least once per week with those who ate fish or seafood less than once per week in the main analyses. Studies suggest that there may be nonlinear

or threshold relations between fish consumption and coronary heart disease and stroke; consumption of small amounts of fish may have a beneficial effect on stroke risk, particularly ischemic stroke [5, 6]. A possible inverse threshold association could be attenuated or eliminated if the exposure level in the reference or the control group is too high. It would better approach the unbiased associations if we could use refined categories of fish or seafood consumption and the cumulative exposure model [7] with repeated measurements in the analysis.

References

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