RE: Plasma Phospholipid Fatty Acids and Prostate Cancer Risk in the SELECT Trial

Brasky et al. (1) report a correlation between the long-chain omega-3 fatty acid docosahexaenoic acid (DHA) in plasma phospholipids and prostate cancer. The difference in DHA levels between cancer and noncancer groups, although statistically significant, was small and of uncertain biological significance. Intakes of fish and fish oil supplements were not analyzed. Accordingly, the authors’ conclusion that prostate cancer risk should influence general advice to increase dietary omega-3 fatty acid intakes is not well supported by scientific evidence.

Brasky and colleagues used data from two case-control studies (1,2), which were nested within trials of interventions unrelated to eating fish or taking fish oil supplements. In these studies, the use of blood samples for analysis of plasma phospholipid DHA and other long-chain omega-3 fatty acids was incidental to the primary purpose of the studies. Neither study involved advice to eat fish or take fish oil supplements. In neither study were dietary intakes of fish or fish oils analyzed.

The levels of DHA were low compared with other studies, including those involving patients not eating fish-rich diets or taking fish oil supplements. For example, the mean levels described in the prostate cancer groups were lower than the mean levels found in our patients known to be not taking fish oil supplements (3).

Especially at the low levels of DHA found in the described studies, plasma fatty acids are relatively weakly associated with dietary intakes (4), with diet accounting for less than half of the plasma and red blood cell observed variability. Furthermore, in diets not rich in fish and without ingestion of fish oil supplements, red meat is as important as fish as a source of dietary long-chain omega-3 fatty acids (5).

A notable aspect of the Brasky et al. (1) studies is that associations between prostate cancer and plasma phospholipid eicosapentaenoic acid (EPA) were absent or very weak even though levels of EPA proportionately increase far more than levels of DHA in response to ingestion of fish oil supplements (3). Also, because of a relative lack of progression of risk through the DHA quartiles (2), the Brasky et al. (1) data are more consistent with a negative association between prostate cancer and very low DHA levels than an increased risk from high DHA levels. Levels in the lowest quartile of values seen in their studies were found in only 6% of 238 patients in our early rheumatoid arthritis cohort at baseline (unpublished data), although such levels would not be unusual in vegetarians (6). In this regard it is notable that ingestion of red meat and animal fat, in contrast with eating fish, have long been associated with increased risk for prostate cancer (7). Because red meat is an important dietary source of DHA and other long-chain omega-3 fatty acids (3), especially in those who eat little fish and do not take fish oil supplements, eating meat may have confounded the results, and lower meat consumption may be a reason for the observed lower rates of prostate cancer in those with lower plasma phospholipid DHA.

References

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DOI: 10.1093/jnci/dju022 First published online March 31, 2014 ©The Author 2014. Published by Oxford University Press. All rights reserved. For Permissions, please e-mail: journals.permissions@oup.com.