To the Editor:

We read with great interest the recently published article by Wu et al.\(^1\) in which the authors investigated the associations of circulating omega-6 (ω-6) polyunsaturated fatty acids (PUFAs), including linoleic acid, γ-linolenic acid, dihomo-γ-linolenic acid, and arachidonic acid, with total and cause-specific mortality in a community-based US cohort. They concluded that high circulating linoleic acid, but not other ω-6 PUFAs, was inversely associated with total and coronary heart disease mortality in older adults. However, we think that there are some points that should be emphasized about this study.

First, as is known, plasma/serum samples are more commonly analyzed for the assessment of an individual’s fatty acid (FA) status because the FA composition of plasma reflects recent dietary fat intake.\(^2\) However, plasma FA levels are subject to multiple different dietary influences. The plasma FA profile may be determined not only by the time elapsed since the ingestion of fat-containing foods but also by the type of dietary FA subgroups ingested. Consequently, because erythrocytes have a rather long life span (≈120 days), the FA profile is considered a better indicator of long-term FA intake compared with the plasma lipids.\(^2,3\) In this respect, the erythrocytes are more stable, and it would be more valuable and indeed proper to measure their FA concentration to assess the functional activity of FAs. Therefore, measurement of erythrocyte membrane PUFA levels may be more significant in such studies.\(^4\)

Second, as is known, omega-3 (ω-3) PUFAs have been proposed as modulators of inflammatory process by inhibiting the production of proinflammatory cytokines.\(^5\) It has been implied that ω-3 PUFAs inhibit the conversion of linoleic acid to arachidonic acid, the precursor of prostaglandin E\(_2\), and decreased production of prostaglandin E\(_2\) consequently leads to the diminished production of inflammatory cytokines.\(^5\) However, levels of ω-3 PUFAs were not evaluated in the participants in the original study. In recent studies, in addition to individual measurements of ω-6 PUFAs, evaluation of the ratio of these FAs to each other (ω-6/ω-3 ratio) rose to prominence in the management of chronic diseases such as heart failure. Accordingly, ω-3 PUFAs, principally docosahexaenoic acid and eicosapentaenoic acid, and the ratio of ω-6 to ω-3 might be better parameters for assessing cardiovascular health in the original study.

In conclusion, measurement of erythrocyte membrane FA levels, including ω-3 PUFAs, and evaluating the ratio of ω-6 to ω-3 would have provided more significant results in the original study.

Disclosures

None.

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