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The Western Diet: A Smoking Gun for Chronic Obstructive Pulmonary Disease and Asthma?

To the Editor:

As a dietitian, nutrition scientist, and person with asthma, I read with interest the recent editorial by Young and Hopkins entitled “Is the ‘Western Diet’ a New Smoking Gun for Chronic Obstructive Pulmonary Disease?” (1). The authors deserve much credit for highlighting the distinct possibility that diet is one of the nontobacco lifestyle factors contributing to chronic obstructive pulmonary disease (COPD).

However, they state that “a Western-type diet confers a greater risk for COPD, but not asthma” (1). Although they cite six studies to support this statement, only two of these citations actually report no association between dietary variables and asthma (2, 3). In contrast, a recent review details studies of diet in relation to asthma and reports strong evidence of a beneficial effect of a Mediterranean diet—vegetables, fruits, long-chain omega-3 fatty acids—as well as vitamins C and vitamin E in asthma (4). These nutrients are found in fresh fruit, vegetables, and nuts/seeds as well as oily fish.

The authors suggest that “a good diet may help attenuate respiratory morbidity” but that this is “unlikely to be verified by randomized control trials...as dietary intervention studies are likely to be difficult to design, fund, and power sufficiently” (1). Evidence-based nutrition and medicine research/practice is indeed difficult but necessary. There are several randomized controlled nutrition intervention trials demonstrating benefit of dietary improvement in subjects with COPD (5) as well as asthma (6, 7). Furthermore, the authors of the article (2) that Young and Hopkins comment on in their editorial (1) recently published a small pilot study concluding that feeding trials in participants with asthma were feasible but that “larger trials are needed to definitively assess the potential benefits of dietary interventions on pulmonary symptoms and function in patients with asthma” (7). These trials are not definitive, but they are possible and very promising. In fact, a 2016 review by the European Academy of Allergy and Clinical Immunology concluded that the literature supports recommendations in clinical practice to increase fruit and vegetable consumption to reduce asthma burden (8).

Young and Hopkins suggest that dietary-induced inflammation may be one mechanism linking a Western diet and COPD (1). It is possible that the same mechanistic pathways linking diet and COPD are involved in asthma. Additional mechanisms may include dietary reduced oxidative stress as well as gut/respiratory microbiome modulation.

I agree with the authors that “a healthy or prudent diet may also help to maintain good respiratory health” (1). The editorial focuses on COPD, but a beneficial effect of the same dietary pattern/components, namely high vegetables, fruits, and whole grains, and potentially nuts/seeds with low or no processed/red meat or refined carbohydrates (including sugar) also seems relevant for asthma.

Intriguing questions remain:

- Will dietary factors documented to improve some of the underlying processes (e.g., inflammation, oxidative stress, immune dysfunction) and comorbidities (e.g., cardiovascular disease) of respiratory diseases translate into improved outcomes in those with respiratory disease?
- Are pulmonologists, nutrition researchers, and funding agencies ready and willing to collaborate on additional research into respiratory disease?
- Considering the high benefit-to-risk ratio of dietary improvement, will dietary recommendations become part of clinical practice?
- Will those with respiratory disease change their diets?

The need for more research in this domain is obvious, and it is hoped that recent articles in *AnnalsATS* (1, 2) can increase interest. I thank Young and Hopkins for their thoughtful editorial (1). However, I suggest that it is important for readers of *AnnalsATS* to appreciate that there is growing evidence that low-cost nutritional factors may have a major influence on several aspects of obstructive lung disease, including COPD and asthma.

Author disclosures are available with the text of this letter at www.atsjournals.org.

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