Commentary

Health effects of dietary risks in 195 countries, 1990–2017: A systemic analysis for the Global Burden of Disease Study 2017

This study was a massive effort in estimating the disease-specific burden attributable to 15 foods and nutrients in adults over 25 years of age in 195 countries by reanalyzing data from 1990 to 2017, using a comparative risk assessment approach. In 2017, they found that dietary risk factors accounted for approximately 11 million deaths (mostly due to cardiovascular disease, CVD) and 255 million disability-adjusted life-years (DALYs), accounting for about one-fifth of the total mortality worldwide, making suboptimal diet the biggest risk factor globally.

Three factors were found to be associated with over half the deaths and nearly two-thirds of DALYs; **they were high intake of sodium, low intake of whole grains, and low intake fruits.** On the other hand, for the last several decades, the emphasis has been on restricting the consumption of red meats and sugar-sweetened beverages, which evidently accounted for a much lesser morbidity and mortality. Additionally, the authors concluded that although the total mortality attributable to dietary factors is higher in 2017 in 1990 (11 million vs. 8 million deaths), the relative risk has, in fact, decreased (from 406 deaths per 100,000 in 1990 to 275 per 100,000 in 2017), possibly due to decreases in the background mortality rate in this period.

However, the authors do note that there is no established evidence of survival benefit by reversing these factors. There is also no concrete method of controlling issues pertaining to food production, processing and distribution that vastly influence consumer behavior. Furthermore, the gold standard for dietary assessment continues to be 24-hour diet recalls, which is known to be unreliable owing to recall bias and social factors. Accurate estimation of the intake of nutrients such as fibre, calcium and polyunsaturated fatty acid (PUFA) is also unavailable, thereby making precise estimation of their intake challenging.

Thus, the strength of evidence supporting a cause–effect relationship between diet and disease is less robust than that for tobacco use and hypertension. It is also notable that the optimal intake of sodium associated with lowest blood pressure was 2.3 g/day, while the intake correlating with least CVD risk was 4–5 g/day. This may be due to the study design: they estimated the relation between urinary sodium and change in systolic blood pressure and then estimated the relation between systolic blood pressure and disease outcomes, which seems to dilute the conclusion that high intake of sodium is the biggest dietary risk factor.

In summary, non-optimal nutrition is a major preventable cause of morbidity and mortality globally. This finding highlights the urgent need for coordinated global efforts to improve the quality of human diet. Given the complexity of dietary behaviour and the wide range of influences on diet, improving diet requires the active collaboration of various factors across the food system, along with policies targeting multiple sectors of the food industry. More definitive studies are needed to establish concrete dietary risk factors and benefits associated with reversing them.