Op-Ed

Restricting Dietary Salt and Public Health: Is the Evidentiary Foundation Crumbling?

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OVER THE PAST FEW DECADES, SALT REDUCTION HAS BEEN a cornerstone of modern public health efforts to limit the incidence of and mortality from cardiovascular disease. On average, Americans consume about 3.4 g of sodium a day, far above contemporary guidelines, which call for a level of 1.5 g to 2.4 g. In 2010 an important modeling effort concluded that altering the intake of dietary salt could save as many as 100,000 US lives annually. The study noted that such an achievement would rank second after the public health benefit of reductions in tobacco smoking.¹ A wide array of distinguished public health and medical journals, including *The Milbank Quarterly*, have strongly supported such goals. But a critical question to ask is just how certain we can be about those assertions.

Recent studies suggest that there is ample room for disagreement. For example, the August 15, 2014, issue of the *New England Journal of Medicine* contained 3 important articles on salt consumption, morbidity, and mortality. Described by the *New York Times* as “warring studies,” these articles laid bare the depths of the controversy. Two of the articles, based on the PURE (Prospective Urban Rural Epidemiology) study, a prospective analysis of more than 100,000 individuals in 18 low-, middle-, and high-income countries, challenged the salt reduction orthodoxy. The first analysis showed “a steep slope” for the association of blood pressure for those who consumed more than 5 g of salt per day, a modest association for those who consumed 3 g to 5 g per day, and “no” significant association for those who consumed less than 3 g a day. Perhaps more striking, the second article based on the same epidemiological study concluded that those who consumed 3 g to 6 g of salt each day had the lowest risk of death and cardiovascular events. “Both higher and lower levels of estimated sodium intake were associated with increased risk, resulting in a J shaped curve.”²

A modeling analysis based on data drawn from the available peer-reviewed medical literature served as the basis for the third article in the *New England Journal of Medicine*.³ In contrast, it concluded that globally in 2010, 1.65 million people died from cardiovascular causes attributable to the consumption of more than 2 g of sodium per day.

These articles are only the most recent expression of a conflict that has lasted for decades. Remarkably, this conflict has taken place even though a majority of public health officials around the world have asserted the necessity of radically reducing the intake of dietary salt. More striking, these recommendations have almost never acknowledged the depths of the controversy over whether or not to work toward a wide-ranging and restrictive intake of salt among large populations. An example of this certitude is the Institute of Medicine's 2010 report "Strategies to Reduce Sodium Intake in the United States," which declared: "For 40 years we have known about the relationship between sodium and the development of hypertension and other life threatening diseases, but we have had virtually no success in cutting back the salt in our diets."⁴

The next year, however, 2 *Cochrane Reviews* challenged the very foundation of the call for stricter sodium intake regulation. One found "no strong evidence" that reducing the intake of salt would have a positive impact on all-cause mortality. The second review questioned whether further research might help clarify the benefit of lowering the intake of salt. "After more than 150 RCTs and 13 population studies without an obvious signal in favor of sodium reduction," this review concluded, "[it might be time to acknowledge] that such a signal may not exist."⁵

Perhaps even more damaging to the empirical foundation for the public policy on salt, the Institute of Medicine issued a report, 3 years after its first call to action, that questioned the evidence for reducing salt to levels widely recommended by public health officials and even suggested that very low salt diets might pose a serious health risk. Those health organizations long associated with the campaign for salt reduction, including the American Heart Association, were sharply critical of this report.

So where should we go from here? It is clear that a commitment to evidence-informed public policy requires that US public health officials take a step back from their long-held position on dietary salt, difficult as that might be. It is time to say that given the conflicting evidence and the new finding that very low salt diets may be ineffective if not harmful, we must press the pause button. Anything less could test the credibility

of official recommendations, not only in regard to salt, but also to a wide range of dietary concerns posed by the challenge of noncommunicable disease.

References

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