The Critical Need for High Quality Research on Dietary Sodium

Two coalitions of major international and national health and scientific organizations were formed to regularly review all research on health outcomes associated with dietary sodium and to make recommendations on minimum standards for the conduct of research on dietary sodium (1-3).

The regular review (Science of Sodium) was recently disbanded, in part, because very little high-quality research was being performed. However, studies with low quality methods prone to spurious results were frequently published, many even in high impact journals. Such a phenomena is complicated because the publishing of low quality studies controversial research was combined with several journals declining to publish letters and commentary critical of the low-quality research results or allowing misleading and incomplete rebuttals (4, 5). A recent manuscript was highly critical of the publications in the European Heart Journal and was followed by a formal complaint about the journal to the European Society of Cardiology (4). The other manuscript reviewed issues causing controversy including financial interests of the authors, low quality research methodology, and the publication and presentation of misleading information on dietary sodium (5).

A series of reviews and recommendations on methods for research on dietary sodium were made and published by the TRUE coalition. (1, 6-10). However, recent publications indicate these recommendations by and large have not been followed by investigators or applied by journals in the manuscript review process. Authors frequently (mis)use methods to assess dietary sodium in individuals that may have validity for assessing population mean sodium intake but are invalid (because of high random and or high systematic error) for assessing sodium intake in individuals.

While many researchers support the need for high quality randomized controlled trials on the effects of dietary sodium on fatal and non-fatal outcomes, such trials are very difficult to do well. Low-quality randomized controlled trials that have ineffective interventions and inadequate descriptions to ensure the quality of the intervention can be decerned are not helpful in providing evidence for clinical and population health. In fact, such research is harmful, and it is critical all data be available to allow an independent assessment of scientific integrity, study quality, and replication of analyses (11).

The reasons for sustaining the false controversy about sodium intake and health are many: conflict of interest (often not declared), commercial bias, lack of public access to raw data, flawed and unremedied research practices, ineffective enforcement of rules on research ethics, and unchecked vested interests of scientific journals (4-5). Low quality research, and misinformation on dietary sodium are commonplace and undermine science and public health efforts to improve population health. Thus, it is critical for all research of dietary sodium to maintain the high integrity, transparency and reproducibility expected of all studies. The public interest in the prevention and treatment of cardiovascular disease requires no less.

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