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An International Call for Action:

Flawed research undermining dietary salt guidelines that protect cardiovascular health

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"The question of contagion in various diseases has often been discussed with a degree of acrimony that is unusual in medical or other scientific enquiries. […] It is the great pecuniary interests involved …" John Snow, 1853.

In the mid 19th century, a cholera epidemic in London occurred, leading some to say it was caused by 'bad air' and others that it was due to a 'germ' transmissible from person to person. This controversy fuelled a political debate about how to control the epidemic. Whilst the Tories supported the 'germ' theory that favoured periods of quarantine to protect agricultural interests, the Liberals argued in favour of the 'miasma' theory, since quarantines would jeopardise free trade and threaten the rising of the industrial bourgeoisie. Controversies in science have since dominated modern public health, often to protect vested interests rather than to promote the public good.

Cardiovascular disease (CVD) is the number one killer of humans. Reducing sodium (mostly from salt) intake improves cardiovascular health. Since 2010, some researchers have been incorrectly claiming that a moderate reduction in sodium (salt) consumption is harmful. Yet, the best available evidence supports the global public health guidance of health organizations, including the World Hypertension League, to reduce sodium consumption to no more than 2,000mg per day (5g of salt per day) to prevent CVD. In the latest issue of Current Nutrition Reports (1) 25 leading experts in nutrition and CVD prevention denounced the incorrect claim that is based on flawed methods, poor rigour in research methodology and bias.

Whilst such an unfounded claim has been contested on its scientific merits over many years, the researchers who make the incorrect claims continue without correction. Their incorrect claim continues to be published in peer-reviewed journals by the same scientists based on the same flawed evidence. They mischaracterize and dismiss the scientific consensus if they cite it at all. These publications mislead readers with their incorrect claims generating doubt and controversy.

The 25 experts analyse the misconceptions, misstatements and deliberate denials of the evidence in eight articles published in the *European Heart Journal* between 2020 and 2021 (2). They identified issues of significant consequences for public health, conflict of interest declarations, and peer-review that journals and policymakers must address to maintain public trust in the scientific process, and numerous challenges to scientific integrity (as seen in the past regarding tobacco and currently regarding climate change).

The reasons for this false controversy about sodium intake 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 (1,3).

The international cardiovascular experts hereby call upon government health and advanced education ministries; universities; research ethics boards; journals; and institutions to take specific steps to address these concerns (1,3). Low quality research, the conduct of some scientists and undeclared vested interests are undermining the reduction of sodium intake in the global population that would prevent CVD, still the leading cause of death globally.

References

(1) Cappuccio FP, Campbell NRC, He FJ, Jacobson MF, MacGregor GA, Antman EM, Appel LJ, Arcand JA, Blanco-Metzler A, Cook NR, Guichon JR, L'Abbè MR, Lackland DT, Lang T, McLean RM, Miglinas M, Mitchell I, Sacks FM, Sever PS, Stampfer M, Strazzullo P, Sunman W, Webster J, Whelton PK, Willett WC. Sodium and health: old myths, and a controversy based on denial. *Curr Nutr Rep* 2022; on-line Feb 14, 2022

(2) [1]. Mente A, Dehghan M, Yusuf S. Eur Heart J. 2020;41(28):2641–4. [2] Lechner K, Schunkert H. Eur Heart J. 2020;41(35):3374–5. [3] O'Donnell M, Mente A, Alderman MH, et al. Eur Heart J. 2020;41(35):3363–73. [4] Mente A, O'Donnell M, Yusuf S. Eur Heart J. 2021;42(21):2116–8. [5] Adedinsewo DA, Pollak AW, Carter RE. Eur Heart J. 2021;42(21):2113–5. [6] Messerli FH, Hofstetter L, Syrogiannouli L, et al. Eur Heart J. 2021;42(21):2134. [7] Yan Y, Mu J. Eur Heart J. 2021;42(21):2133. [8] Messerli FH, Hofstetter L, Syrogiannouli L, et al. Eur Heart J. 2021;42(21):2103–12.

(3) Campbell NRC, He FJ, Cappuccio FP, MacGregor GA. Dietary sodium 'controversy': issues and potential solutions. *Curr Nutr Rep* 2021; 10: 188-199.