Reducing Salt Intake for Prevention of Cardiovascular Disease—Times Are Changing

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The evidence relating blood pressure to salt intake in humans originates from population studies and randomized clinical trials of interventions on dietary salt intake. Estimates from meta-analyses of trials in normotensive subjects generally are similar to estimates derived from prospective population studies (+1.7 mm Hg increase in systolic blood pressure per 100-mmol increment in 24-hour urinary sodium). This estimate, however, does not translate into an increased risk of incident hypertension in people consuming a high salt diet.

Statistical modelling led to the belief that modest reductions in dietary salt intake could substantially reduce cardiovascular events and medical costs.[1,2] Short-term intervention studies in human normotensive volunteers[3,4] or hypertensive patients[3,4] or even chimpanzees[5] cannot be reasonably extrapolated to the long-term exposure of the general population to salt. The Institute of Medicine (IOM) report, "Sodium Intake in Populations: Assessment of Evidence,"[6] failed to find robust evidence to support current guidelines promoted by the US Centres for Disease Control and Prevention,[7] the New York City Department of Health and Mental Hygiene,[8] or the American Heart Association[9] to reduce sodium intake population-wide from the current 3,400 mg/day (148 mmol/day) to <2,300 mg/day (100 mmol/ day) and, for half of the US population at increased cardiovascular risk, to <1,500 mg/day (65 mmol/day). The IOM recognized the heterogeneity of results among observational and experimental studies, baseline level of blood pressure and sodium intake being the major determinants of the blood pressure responses to sodium restriction.[6] Furthermore, the IOM cautioned against sodium intakes <1,500 mg/day (65 mmol/day).[6] Of US adults, only 9% currently consume <2,300 mg/day and just 0.6% have a sodium intake <1,500 mg/day,[10] rendering the ban on salt,[9] if at all feasible,[11] the most aggressive lifestyle intervention ever planned in the history of mankind. The guidelines[7–9] completely disregard potential harm caused by the exponential activation of the renin-angiotensin-aldosterone system[12] and the sympathetic nervous system,[13] by adverse changes in serum lipids,[14] or by increasing insulin resistance,[15] once 24-hour urinary sodium excretion drops to <100 mmol/day.

In conclusion, for science to advance, from time-to-time, medical textbooks and dogma's need a Copernican revolution. Perhaps the time has come for the advocates of the worldwide action on salt to reconsider their salt-centric point of view of the healthcare cosmos.

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