Reducing population salt intake - An update on latest evidence

By Dr. Feng He

The Global Burden of Disease (GBD) study shows that high salt intake is a leading dietary risk factor, accounting for 3 million deaths and 70 million disability-adjusted life-years in 2017.1 The WHO has recommended a reduction in population salt intake from the current level of ≈10 g/d to less than 5 g/d. A few recent cohort studies have challenged this recommendation as these studies suggested a J-shaped association, i.e. both lower and higher salt intakes were associated with an increased risk of cardiovascular disease (CVD) events and deaths.2-4 However, these studies have several methodological problems, one of which is the biased estimation of salt intake from a single spot urine with formulas. An analysis of the Trials of Hypertension Prevention (TOHP) follow-up data has clearly illustrated that inaccurate estimation of salt intake is an important contributor to the J-shaped findings.5,6 When salt intake was measured by the most accurate method of multiple non-consecutive 24-h urinary sodium excretions, there was a direct linear association with CVD events and all-cause mortality, down to a level of 3 g/d (Figure).6 When the accurately measured salt intake was replaced with the estimated values from sodium concentration using formulas, the linear relationship was altered to a J-shaped appearance.6 Furthermore, when sodium concentration was kept constant in the formulas, the estimated salt intake appeared to be inversely related to mortality at lower levels of salt intake.6 These findings indicate that variables in the formulas, other than sodium, could at least partially explain the increased risk with a lower salt intake reported in some cohort studies. This is not surprising, given that other variables in the formulas (age, sex, body weight and creatinine concentration) are known to be associated with mortality.

Most cohort studies have used salt intake estimated at baseline and looked at its association with subsequent occurrence of CVD events or death. Such studies cannot capture the changes in salt intake during many years’ follow-up. A recent study demonstrated that the salt-related CVD risk increased by up to 85% with the use of long-term salt intake as measured by multi-year 24-h urine collections instead of single baseline 24-h urine.8

As summarised in a recent paper in the Journal of Clinical Hypertension,9 the latest evidence from good quality studies has provided further strong support for a population-wide reduction in salt intake.10 Paradoxical J-shaped findings from methodologically flawed studies should not be used to derail critical public health policy, nor divert action. Salt reduction as recommended by the WHO remains an achievable, affordable, effective and important strategy to prevent CVD and premature death. Several countries have been successful in reducing salt intake11,12 and many other countries have started salt reduction initiatives. Urgent action is needed to speed up salt reduction worldwide.

Figure. Relationship between salt intake estimated by different methods and the risk of death (adapted from He et al, Hypertension 2019).6
References


