

Seasonality of sodium and potassium consumption in Switzerland. Data from three cross-sectional, population-based studies

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Abstract

Background and aim: Blood pressure displays a seasonal pattern. Whether this pattern is related to high sodium and/or low potassium intakes has not been investigated. We assessed if sodium and potassium consumption present a seasonal pattern. We also simulated the impact of seasonality of sodium consumption on systolic blood pressure levels.

Methods and results: Data from three Swiss population-based studies (n = 2845). Sodium and potassium consumption were assessed by urinary excretion using 24 h urine collection. Seasonality was assessed using the cosinor model and was adjusted for study, gender, age, body mass index, antihypertensive drug treatment, urinary creatinine and atmospheric relative humidity. The effect of sodium variation on blood pressure levels was estimated using data from a recent meta-analysis. Both sodium and potassium excretions showed a seasonal pattern. For sodium, the nadir occurred between August and October, and the peak between February and April, with a multivariate-adjusted seasonal variation (difference between peak and nadir) of 9.2 mmol. For potassium, the nadir occurred in October and the peak in April, with a multivariate-adjusted seasonal variation of 4.0 mmol. Excluding participants on antihypertensive drug treatment or stratifying the analysis by gender cancelled the seasonality of sodium consumption. The maximum impact of the seasonal variation in sodium consumption on systolic blood pressure ranged from 0.4 to 1.1 mm Hg, depending on the model considered.

Conclusion: Sodium and potassium consumptions present specific seasonal variations. These variations do not explain the seasonal variations in blood pressure levels.