Key messages:
- Sodium and potassium may not always be associated with changes in blood pressure.
- Sugar intake might have an important role in the etiopathology of hypertension.

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Total sugar intake significantly associated with systolic blood pressure in small sample population

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Background: Hypertension contributes to 45% of all deaths from heart disease and up to 51% of deaths from strokes. Dietary factors, such as sodium (Na+) and potassium (K+) can play a role, but recent studies have also highlighted the importance of sugar intake on blood pressure. Very few studies have evaluated the impact of these factors and their ratio on cardiometabolic biomarkers. This study aims to assess the impact of dietary sugar intake, Na+, K+ and NA+/K+ ratio on hypertension and cardiometabolic biomarkers.

Methods: Fasting venous blood was collected to measure glucose, triacylglycerols (TAG), total cholesterol, HDL-c, ApoA1, ApoB, or hs-CRP, with enzymatic and turbidimetric techniques, and oxidized LDL by ELISA, and IL-6 and TNFa by Luminex system, the latter's in a subset sample. Blood pressure (SBP, DBP, and HR) was measured at least twice with an automatic recorder. Dietary intake was obtained using semi-quantitative FFQ, comprising 82 items, and reported to the previous year. Data was analysed using R software through descriptive analysis and partial correlations adjusted to the participant's BMI. A significant level of 0.05 was used.

Results: 78 participants, aged from 19 to 80 years old (M = 48,5± 13,5) were evaluated, with 47% taking hypertensive medication. BMI ranged from 19,7 to 41,1 Kg/m2 (M = 29,2±5,4). The average intake of Na+, K+ and NA+/K+ ratio were 3805±1397 mg, 3980±1300 mg and 1.65±0,38, respectively. Total mean sugar intake (% energy) represents 21,4%. No significant correlation was found between Na+ or K+ with SBP, HR, and the cardiometabolic biomarkers ($p > 0.05$). A positive correlation was found between % sugar intake and SBP ($rs = 0,29$, $p < 0,05$), which remains significant after adjusting for BMI, and a positive correlation, in the borderline of significance, with TAG ($rs = 0,23$, $p = 0,0561$).

Conclusions: N+, K+, and their ratio do not associate with SBP, HR and cardiometabolic biomarkers. However, % of sugar intake is positively associated with SBP.