ULTRAPROCESSED FOOD CONSUMPTION AND URIC ACID LEVELS: CROSS-SECTIONAL ANALYSIS FROM THE BRAZILIAN LONGITUDINAL STUDY OF ADULT HEALTH (ELSA-BRASIL)

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BACKGROUND

Food consumption contributes to serum uric acid (UA) levels, mainly by increasing synthesis, but also by decreasing UA excretion as previously described with decreased sodium intake. The purchase and consumption of ultraprocessed foods (UPF) have increased over the years and cross-sectional studies have shown associations of higher consumption of UPF with overweight/obesity, higher waist circumference and presence of metabolic syndrome. However, evidence on UPF consumption and UA levels still an open field and is the aim of the present study.

METHODS

This is a cross-sectional analysis of data collected at baseline of the ELSA-Brasil (2008–2010) and included participants who completed food frequency questionnaire (FFQ) and had a baseline UA measurement ($n = 15,064$). Participants with a history of bariatric surgery ($n = 107$), glomerular filtration rate (GFR) < 60 mL/min/1.73 m² ($n = 712$), implausible total energy intake (< 500 and $> 6,000$ kcal; $n = 200$), and use of UA-lowering drugs (allopurinol $n = 114$ and benzbromarone $n = 8$) were excluded. Uric acid was measured by the enzymatic colorimetric method. Food consumption was assessed through a previously validated semiquantitative FFQ, composed of 114 items, which estimates food intake in the last 12 months. Ultraprocessed foods were classified by the NOVA, which classifies foods based on the extent and purpose of industrial processing they have been submitted to. Multiple linear regression analysis was used to verify the association between UPF consumption (per 100 g/day) and UA levels (mg/dL), adjusted for the following confounding variables: age (years), gender, income (quintile), alcohol consumption (beer or wine; g/day), hypertension, diabetes, prevalent cardiovascular disease, GFR (mL/min/1.73 m²) and total energy value (kcal).

RESULTS

The median (interquartile range-IR) age of 13,923 participants included in the present analyses was 51 (45–58) years, 55.2% female. Median (IR) UPF consumption was 355.0 (220.5–555.3) g/day and UA levels was 5.3 (4.4–6.4) mg/dL. Each increase of 100 g of ultraprocessed products consumed was associated with a significant increase of UA level (mg/dL) (β : 0.034; 95% confidence interval [CI]: 0.026–0.043; $p \leq 0.001$), remaining significant after full adjustments (β : 0.024; 95% CI: 0.016–0.032; $p \leq 0.001$).

CONCLUSION

The consumption of UPF was associated, although in a small magnitude, with an increase in UA levels, with the higher UA levels being another consequence of UPF consumption.

FUNDING

ELSA-Brasil is supported by the Brazilian Ministry of Health and of Science and Technology (FINEP and CNPq), Grant Nos. 01060010.00 RS, 01060212.00 BA, 01060300.00 ES, 01060278.00 MG, 01060115.00 SP, 01060071.00 RJ and ELSA-Brasil MSK by CAPES (054/2010), FAPEMIG (APQ-00921-16) and CNPq (42358520169).

KEYWORDS

Ultraprocessed food, Uric acid, NOVA classification, ELSA-Brasil.