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OCCURRENCE OF HUMAN HEALTH RISKS OF OXALATE LITHIASIS GENERATED BY ENVIRONMENTAL AND DIETARY FACTORS

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Abstract

When referring to the influence of environmental factors in urinary lithiasis, usually heat exposure is the primary etiologic factor, underestimating the soil in which the plants are cultivated or water characteristics, the main sources of patients' nutrition. In this retrospective study, we analyzed the correlations between the patients' nutrition, the composition of the stones and the risk of lithiasis recurrence. We analyzed data from 390 stones collected between 2019 and 2022. The composition of the stones was determined by infrared spectroscopy (FTIR), and the evaluation of the patients' nutrition was quantified by the LAMPA questionnaire. We found that for patients with calcium oxalate dihydrate lithiasis, the most important dietary risk factor in the occurrence of recurrence is represented by excessive salt consumption (risk five times higher for patients 18-30 years old, 21 times higher for patients 31-40 years old and 16 times higher for patients 51-60 years old). We also noticed that this crystalline species is associated with the dietary excess of bread (for patients 18-30 years old), potatoes (9.5 times higher risk for patients 18-30 years old and 5.5 times higher risks for patients 41-50 years old) and with the excessive consumption of animal proteins (3.54 times higher risk for patients aged 41-50). In patients with calcium oxalate monohydrate lithiasis, the frequent consumption of potatoes was associated with a 13 times higher risk of developing lithiasis recurrence (in patients 31-40). Other important risk factors for this type of stone are represented by alcohol (8 times higher risk for patients aged 31-40 and 20.4 times higher for patients aged 51-60), and protein consumption (5 times higher risk for patients aged 51-60).

Key words: infrared spectroscopy, kidney stones, metaphylaxis, nutrition, oxalate, potatoes

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