Abstract

Introduction: Based on the high prevalence of hypertension and stroke an excessive salt consumption is postulated in Portugal since decades ago. Even so there are seldom population studies that evaluate salt intake by the method proposed in international reference studies - the determination of sodium excretion on a 24 hours urine sample - and even more uncommon, or nonexistent, studies that define food consumption patterns for different levels of urinary sodium excretions.

Objective: To determine dietary patterns associated with different levels of daily urinary sodium excretion in hypertensive patients.

Methodology: This study involved 154 hypertensive patients (89 women and 65 men) with a mean age of 50,8 years. All individuals collected a 24 hours urine sample to determine the daily excretion of sodium (EUNa) and were subjected to a structured questionnaire to assemble clinical data and a semi-quantitative food-frequency questionnaire. The subjects were grouped according to the values of terciles' distribution of EUNa. The dietary patterns in EUNa's terciles, by sex, were determined from food-defined groups based on their nutritional similarities and amount of sodium. The food patterns analysis was made crude and adjusted for calories intake, using a standard linear multivariate analysis.

Results: Mean EUNa was 204,8 + 74,6 mmol/day (women: 194,7 $\pm$ 67,0 mmol/day; men: 218,9 $\pm$ 82,7 mmol/day; p <0.05). This corresponds to an average of 12,3 g/day of sodium chloride. In the different terciles the values were: EUNaT1 - women: 128,0 $\pm$ 20,7 mmol/day; men: 124,7 $\pm$ 28,5 mmol/day;

EUNaT2 - women: 165,7 ± 23,4 mmol/day; men: 201,4 ± 22,l1 mmol/day; EUNaT3 - women: 282,7 ± 33,8 mmol/day; men: 292,7 ± 61,3 mmol/day (p <0,05). The average of estimated sodium intake by the semi-quantitative food frequency questionnaire was 3917,1 ± 1087,8 mg/day (adjusted for calories - women: 3978,2 ± 66,1 mg/day; men: 3833,5 ± 78.5 mg/day; p <0,05). EUNa showed a significant weak association with estimated sodium intake in the whole population (r = 0,170; p <0,035) and in the analysis by gender.The dietary patterns analysis' found that, among women, the EUNaT1 food pattern is characterized by a greater consumption of: *Milk and yogurt, Cheese, Eggs, Molluscs/Shellfish/Seafood, Fresh and preserved fruit, Pastries and Fast food*, and a lower consumption of: *Red meat, Meat products and Fats, Bread, Rice/Pasta/Baked potatoes and Dried fruits*. In the EUNaT2 dietary pattern women had a lower consumption of: *Cheese, Meat products, French fries* and *Pulses,* and a higher consumption of: *Milk and yogurt* and *Cereal flakes and biscuits*. The EUNaT3 women's dietary pattern was characterized with a higher consumption of: *Cheese, Red meat, Meat products, Fats, Breads, Rice/Pasta/Baked potatoes, French fries and Pulses,* and less consumption of: *Milk and yoghurt, Eggs, Molluscs/Shellfish/Seafood, Cereal flakes and biscuits, Pastries, Fresh and preserved fruits and Fast food*. Concerning men, the EUNaT1 group was characterized by a greater consumption of *Fast Food* and lower consumption of *Cheese, Red meat and Poutryt, Meat products, Cereal flakes and biscuits, French fries and Pastries.* The EUNaT2 men's group had a higher consumption of *Milk and yoghurt, Red meat and Poultry* and lower consumption of *Bread, Soft drinks and Beer*. EUNaT3 men had a higher intake of *Cheese, Meat products, Bread, Cereal flakes and biscuits, French fries,*

Pastries, Soft drinks and *Beer* and a lower consumption of *Fast Food*

Conclusion: From the present study we can assume that salt consumption comes directly from foods inherently rich in salt, as well as the contribution of salt added in preparation of food. These data can be the beginning of an approach in terms of salt consumption patterns but it is necessary to know the national salt consumption patterns in order to draw a public health intervention involving governmental, scientific and industrial partners so they can ensemble strategies to build information systems, promote health education, develop regulation, supervision and ongoing negotiations with stakeholders with the aim of reducing the consumption of salt in Portugal.

Key words: dietary patterns, urinary sodium, hypertension