

Abstract

Introduction: Osteoporosis is a chronic systemic metabolic disease of bone tissue, which is manifested by a decrease in the amount of bone mass and/or a decrease in its quality and may result in a fracture. Fractures are also common for primary hyperparathyroidism due to increased parathyroid hormone secretion. Surgical treatment will help increase bone density in most cases, nevertheless emphasis is placed on reducing risk factors for osteoporosis and fractures.

Objective: Purpose of this thesis is to map the nutrition condition with focus on calcium and protein intake of postmenopausal women after successful surgical intervention for primary hyperparathyroidism (PHPT group), and to evaluate the results in relation with osteoporosis and fractures.

Methods: Nutritional status was assessed using questionnaires of eating habits and analysis of three-day menus. Intakes of energy, protein, fat, sugar, fiber, free sugar, vitamin C, sodium, calcium and phosphorus intake were calculated using Nutriservis PROFI program (and other nutritional databases). The degree of vitamin D saturation was obtained from serum calcidiol concentrations. Body composition and bone mineral density parameters were measured using dual energy X-ray absorptiometry.

Results: Nutritional analysis of diets showed no statically significant differences in nutrient intake between the PHPT group and the control group. In both groups there was a higher intake of phosphorus, saturated fatty acids, lipids, sodium, proteins (especially animal), energy and low intake of fiber, calcium, in the case of the PHPT group vitamin C. Physical activity and sun exposition was more pronounced in the group PHPT, however, serum calcidiol concentrations were lower in the PHPT group. BMI was higher in the PHPT group, as was the ratio of the distribution of android to gynoid fat in the body. Also, a high risk of major osteoporotic fracture ($\geq 20\%$) and hip fracture ($\geq 3\%$) was more frequently reported in the PHPT group. BMD values were similar between groups except for the distal radius area, where BMD was significantly lower in the PHPT group.

Conclusion: Inappropriate eating habits may persist in the PHPT group even after successful surgical treatment and lead to the development of secondary hyperparathyroidism and further loss of BMD and fractures. In this risk group, it is therefore necessary to ensure a sufficient intake of calcium and vitamin D, a balanced ratio of animal and vegetable proteins, to eliminate the intake of phosphorus, sodium, saturated fatty acids and fats in general. Adherence to regular physical activity and the principles of a healthy diet should be a priority.

Keywords: Osteoporosis, nutrition, calcium, primary hyperparathyroidism