European Journal of Nutrition

March 2013, Volume 52, Issue 2, pp 717-726

Protective effect of myo-inositol hexaphosphate (phytate) on bone mass loss in postmenopausal women

- Angel A. López-González,
- Félix Grases,
- Nieves Monroy,
- Bartolome Mari,
- Mª Teófila Vicente-Herrero,
- Fernando Tur,
- Joan Perelló

Abstract

Introduction

The objective of this paper was to evaluate the relationship between urinary concentrations of Ins*P*6, bone mass loss and risk fracture in postmenopausal women.

Materials and methods

A total of 157 postmenopausal women were included in the study: 70 had low (≤0.76 μM), 42 intermediate (0.76–1.42 μM) and 45 high (≥1.42 μM) urinary phytate concentrations. Densitometry values for neck were measured at enrollment and after 12 months (lumbar spine and femoral neck), and 10-year risk fracture was calculated using the tool FRAX®.

Results

Individuals with low Ins*P*6 levels had significantly greater bone mass loss in the lumbar spine (3.08 ± 0.65 % vs. 0.43 ± 0.55 %) than did those with high phytate levels. Moreover, a significantly greater percentage of women with low than with high Ins*P*6 levels showed more than 2 % of bone mass loss in the lumbar spine (55.6 vs. 20.7 %). The 10-year fracture probability was also significantly higher in the low-phytate group compared to the high-phytate group, both in hip (0.37 ± 0.06 % vs 0.18 ± 0.04 %) and major osteoporotic fracture (2.45 ± 0.24 % vs 1.83 ± 0.11 %).

Discussion

It can be concluded that high urinary phytate concentrations are correlated with reduced bone mass loss in lumbar spine over 12 months and with reduced 10-year probability of hip and major osteoporotic fracture, indicating that increased phytate consumption can prevent development of osteoporosis.