Abstract

Background: Several lines of evidence suggest a tight association between oxidative stress and the pathogenesis of osteoporosis in humans. The intake of antioxidants may influence Bone Mineral Density by acting as free radical scavengers, preventing oxidation-induced damage to bone cells. Objective: The aim of this study was to assess the association between the Dietary Antioxidant Quality Score and bone mineral density in a sample of healthy women. Methods: A total of 280 women were grouped into three major groups: women aged 35 years; women aged 36-45, and finally women aged >45 years. Calcaneous Bone Mineral Density (g/cm²) was measured by dual energy X-ray absorptiometry. Data on the eating habits of each participant were collected with a structured 24-hour diet recall questionnaire. A Dietary Antioxidant Quality Score was used to calculate antioxidant-nutrient intake. Results: A significant and positive association was observed among Bone Mineral Density and dietary intake of vitamin C and selenium. Zinc intake was significantly related to Bone Mineral Density in the youngest group. Low antioxidant consumers were considered individuals whose Dietary Antioxidant Quality Score was lower or equal than the median (3.5), and high antioxidant consumers were those whose Dietary Antioxidant Quality Score were higher than 3.5. Bone Mineral Density was higher in the participants defined as high antioxidant consumers in all aged groups. Conclusion: The study showed that there is an association between Bone Mineral Density and the Dietary Antioxidant Quality Score in all the women studied. Therefore, new therapies for osteoporosis based on higher dietary antioxidant intakes might be developed basing on the results obtained in this study.

Keywords

Antioxidants, Nutrition, Bone mineral density.