Abstract

Title: Milk protein for strong bones

Author: Josefin Nyberg, Sara West

Supervisor: Hanna Olausson
Examiner: Anna Winkvist
Programme: Dietician study programme, 180/240 ECTS
Type of paper: Examination paper, 15 hp
Date: May 25, 2011

Background: Osteoporosis is a disease in the skeleton which increases the risk of fractures. The disease is asymptomatic but the fractures lead to morbidity and increased mortality. In Sweden one in three women between the age of 70-79 are estimated to have osteoporosis in the hip and the number is expected to increase with an ageing population in Sweden. A strategy to decrease the risk of osteoporosis is to increase bone mineral density (BMD). Recent years several studies have examined if milk protein can affect BMD.

Objective: To investigate if cow milk protein affects the bone remodeling process and/or leads to higher bone density in young humans, which can increase peak bone mass.

Search strategy: Searches have been done in PubMed and Scopus for original articles in April 2011. The keywords used were "Milk AND bone mass/density", "Milk protein AND bone mass/density", "Milk basic protein AND bone mass/density"

Selection criteria: Original articles in Swedish/English that investigated BMD with Dual energy X-ray absorbiometry (DXA) and bone remodeling with biomarkers after intake of milkprotein were included. Only human studies on healthy men and/or women, who were not pregnant or lactating, and in the maximum age of 35 years, were included. Studies who investigated milk enriched more than standard with vitamin D, and studies that only focused on the total intake of calcium were excluded.

Data collection and analysis: The articles were selected according to the decided inclusion and exclusion criteria and were then inspected according to “Granskningsmall för RCT” developed by State preparing for health technology assessment (SBU). The results of the studies were then put together and evaluated according to “Sammanfattande evidensformulär” that is based on GRADE.

Main results: Three studies were included and two of these showed a significant increase of BMD. Two studies demonstrated a decrease in biomarkers for bone resorption as an effect of the intervention. One study demonstrated an increase in biomarkers for bone formation as an effect of the intervention.

Conclusions: The results from the studies are not convincing enough to answer the question if milk protein from cow milk can affect bone remodeling and increase bone density in young humans, which could lead to an increase in peak bone mass. The studies that have been included have quality defects and show conflicting results. Larger randomized controlled trials are necessary.