[SL-6]

The Effects of Chicory Fructan Fiber on Bone Metabolism in Korean Postmenopausal Women

Yun-Young Kim, Ki-Hyo Jang, Eun-Young Lee, and Ryowon Choue

Department Medical Nutrition, Graduate School of East-West Medical Science, Kyung Hee University

Generally, two different types of fructose polymer are found in nature. One is inulin whose fructosyl residues are linked mainly by a β-(2,1)-linkage, while the other is high-molecular-weight levan, whose fructosyl residues are linked mainly by a β-(2,6)-linkage.

Chicory inulin is a natural linear fructan polymer that is not digested in the upper part of the gastrointestinal tract, but is fermented in the cecum and colon. In rats, inulin stimulates calcium absorption in cecum and colon. Recently, this effect was also found in human subjects. We investigated the effects of supplementation of chicory fructan fiber (with or without calcium supplement) on parameters of bone metabolism in blood and on bone mineral density in Korean postmenopausal women. Fifty one healthy postmenopausal women were randomly divided into four groups in a double-blind parallel design and consumed one of the supplements for 3 months; placebo of 8 g maltodextrins /sucrose mixture (control), 8 g inulin (inulin), 8 g inulin with 1,000 mg of calcium (inulin + Ca), and placebo of 8 g maltodextrins /sucrose mixture with 1,000 mg calcium supplementation (Ca).

Apparent calcium absorption significantly increased in inulin group, while calcium absorption decreased 29% in control group as compared with the baseline levels. The levels of serum osteocalcin, in calcium supplement groups (inulin+Ca and Ca group) were significantly lower than those of non-supplement groups ($p<0.05$). The level of serum ALP and deoxypyridinolin showed a trend to be slightly reduced after 3 months consumption of inulin (inulin, inulin+Ca group). After the 3 months of supplement period, no differences were found in bone mineral density (BMD) among the four groups. In conclusions, supplements of Chicory Fructan Fiber with regular diet might increase calcium absorption and improved the blood levels of parameters of bone metabolism in the Korean postmenopausal women .