Cadmium is a toxic element ubiquitous in the environment, which damages biological systems in various ways. The major source of cadmium exposure is food. High cadmium content in the soil leads to high cadmium concentrations in certain plants such as grains (above all surface layers and germ), oil or non-oil seeds, fruit and vegetables. These food commodities are the crucial components of a vegetarian nutrition. Blood cadmium concentrations were measured in two non-smoking population groups: the vegetarian group (n = 80) and the non-vegetarian (control) group of general population on traditional mixed diet (n = 84). The significantly higher blood cadmium content (1.78±0.22 vs. 0.45±0.04 µg/l) was measured in vegetarian group. Healthy risk values > 5 µg/l were found in 6 vegetarians vs. no non-vegetarian. The highest cadmium concentration (3.15±0.77 µg/l) was measured in vegan subgroup (plant food only, n = 10) and that value decreased with increasing animal food consumption (1.75±0.36 µg/l, lactovegetarian and lactoovovegetarian subgroup /added dairy products and eggs, n = 41/, 1.34±0.21 µg/l, semivegetarian subgroup /as a previous subgroup and added white meat, n = 29/). Risk vegetarians vs. non-risk vegetarians consume significantly higher amounts of whole grain products, grain sprouts and oil seeds. Blood cadmium content is directly influenced by age (r = 0.32, p < 0.001), by whole grain product intake (r = 0.66, p < 0.001) and by duration of vegetarianism (r = 0.5, p < 0.001). Oxidative stress plays a major role in chronic cadmium induced hepatic and renal toxicity as well as in other consequences of cadmium injuries. Vegetarians have significantly higher plasma concentrations of natural antioxidants. The sufficient antioxidative protection against cadmium induced free radical formation in vegetarians may inhibit the harmful effects of greater cadmium intake from plant food.

Key words: cadmium, nutrition, vegetarians

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