Abstract

Aim: To study the effects of drinking 0.5 L of two sodium-rich bicarbonated mineral waters (BMW-1 and 2), with a standard meal, on postprandial insulin and glucose changes. And to determine, if the effects vary depending on insulin resistance, measured by homeostasis model assessment (HOMA). Methods: In a 3-way randomized crossover study, 18 healthy postmenopausal women consumed two sodium-rich BMWs and a low-mineral water (LMW) with a standard fat-rich meal. Fasting and postprandial blood samples were taken at 30, 60 and 120 min. Serum glucose, insulin, cholesterol and triacylglycerols were determined. Insulin resistance was estimated by HOMA and insulin sensitivity was calculated by quantitative insulin sensitivity check index (QUICKY). Results: Glucose levels did not change. HOMA and QUICKY values were highly inversely correlated (r = -1.000; p < 0.0001). Insulin concentrations showed a significant time effect (p < 0.0001) and a significant water x time interaction (p < 0.021). At 120 min insulin levels with BMW-1 were significantly lower than with LMW (p = 0.022). Postprandial insulin concentrations showed significantly different patterns of mineral water intake depending on HOMA n-tiles (p = 0.016). Conclusion: Results suggest an increase in insulin sensitivity after BMWs consumption. This effect is more marked in the women, who have higher HOMA values. These waters should be considered part of a healthy diet in order to prevent insulin resistance and cardiovascular disease.

Keywords

Bicarbonated mineral water, Insulin, Glucose, Sodium, Fluoride