Effect of Serum Calcium and Phosphorus Concentration on Obesity (Case study: Mashhad Population)

Zahra Jafari Giv¹, Majid Ghayour Mobarhan¹, Farshid Hamidi³

Abstract:

Introduction: Serum calcium and phosphorus are essential biochemical markers in understanding the pathophysiology of bone health that are affected by several factors. The prevalence of obesity is increasing in many countries and is associated with serious complications. Obese people due to consumption of food with high calories and low nutritional value may be at risk of nutritional deficiencies, so the purpose of this study is to understand the effect of obesity on serum calcium and phosphorus.

Methods: Serum samples from 907 healthy individuals aged from 34 to 45 years living in Mashhad (443 men and 464 women) were collected and calcium and phosphorus were measured. Body mass index (BMI) was calculated as body weight (kg) divided by squared height in meters (m²). In order to investigation of association between obesity and serum calcium and phosphorus, the samples were classified into two groups including 647 normal people and 260 obese people (BMI higher than 30). Data were calculated using SPSS V.20 software.

Results: The mean ± SD of BMI was significantly higher in women than men. There was significant association between BMI and serum calcium among groups (P<.05) that show the lower amount of serum calcium in obese people. But no significant association was found between serum phosphate levels and obesity.

Conclusion: With regarding to studies that show a high-calcium diet produces weight loss, it seems that lower amount of serum calcium might be one of the causes of obesity in this study; therefore an interaction between calcium level and obesity may be important.

Keywords: Obesity; BMI; Calcium; Phosphorus; Mashhad

¹Student of Veterinary Medicine, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran
²Biochemistry of Nutrition Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
³Section of Physiology, Department of Basic Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran: farshidhamidi@um.ac.ir