Objective: In this study, we aimed to investigate whether high parathormone (PTH) levels in obese patients contribute to the metabolic complications of obesity.

Methods: In this cross-sectional study, obese subjects, aged 18-65 years old, attending the outpatient clinic of Kartal Dr. Lutfi Kardar Training and Research Hospital in Istanbul, between June 2013 and January 2015, were evaluated. A total of 400 obese subjects were included in this study. Anthropometric, bioelectrical bioimpression measures, blood tests, and 75 g oral glucose tolerance test (OGTT) results were evaluated.

Results: Of the 400 obese subjects, 335 were female. The mean age was 39 ± 10. The median body mass index (BMI) was 36 (34-41) (interquartile range). Subjects were divided into quartiles according to blood PTH levels. Groups included Quartile 1 [n = 100, median PTH: 42 (36-45)], Quartile 2 [n = 100, median PTH: 55 (51-59)], Quartile 3 [n = 100, median PTH: 73 (68-78)], and Quartile 4 [n = 100, median PTH: 99 (89-125)]. Quartiles were evaluated with a generalized linear model adjusted for age, sex, and season of recruitment. Systolic and diastolic blood pressure, fasting glucose, homeostatic model assessment-estimated insulin resistance (HOMA-IR), insulin sensitivity index (ISI), triglyceride (TG), and high density lipoprotein cholesterol (HDL-C) were not different among quartiles. PTH and 25 hydroxyvitamin D (25(OH)D) were not associated with higher odds of prevalent metabolic syndrome (MetS) in obese subjects (OR 0.99 [% 95 CI 0.98-1.00], P=0.38 and 0.99 [% 95 CI 0.96-1.01], P=0.46, respectively). Decreased 25(OH)D levels were significantly correlated with higher odds of low HDL-C (OR 0.96 [% 95 CI 0.93-0.99], P=0.04).

Conclusion: PTH does not contribute to the occurrence of metabolic components of obesity but there is a positive correlation between 25(OH)D and HDL-C.