CALCIUM AND PHOSPHATE METABOLISM IN PATIENTS WITH POLICYSTIC OVARY SYNDROME

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Introduction
Recent data showed that polycystic ovary syndrome (PCOS) is related to abnormal calcium and phosphate metabolism. The patients are characterized by elevated levels of phosphorus and parathyroid hormone (PTH) and decreased levels of vitamin D. Abnormalities in mineral homeostasis are related to insulin resistance. In this study we assessed a complex of calcium and phosphate metabolism indices in patients diagnosed with PCOS.

Material:
60 women, aged 25±5 years diagnosed with PCOS according to Rotterdam criteria were included to the study. The control group consisted of 22 healthy women and was age (28±5 years) and BMI matched.

Methods
Calcium and phosphorus were measured in serum and in 24 hours urine collection, the fractional urine excretion was assessed. We also measured the 25OH-vitamin D3, PTH, gonadotropins, estradiol, testosterone, and lipid fraction concentrations. Serum insulin and glucose concentrations were used to calculate the HOMA index.

Results
Total serum calcium levels were higher in PCOS patients (2.4±0.1 vs 2.2±0.1 mmol/L, p=0.05) but were within normal range. The other mineral concentrations and urine excretion were the same in both groups and within normal limits. HOMA and estradiol were positively correlated in PCOS group with serum calcium levels and fractional phosphorus excretion was negatively influenced by testosterone concentration in control group. PTH correlated inversely with serum calcium and vitamin D3 in both groups. Insulin and HOMA were correlated positively with vitamin D3 concentrations in PCOS women.

Conclusions
For the first time we showed that patients with PCOS has normal urinary excretion of calcium and phosphorus and that in healthy patients phosphorus excretion is influenced by androgens. We confirmed the link between vitamin D and insulin resistance in patients diagnosed with PCOS.