PURPOSE:

The aim of this study was to determine the mineral status of mandibles, femurs, and spines in chronic obstructive pulmonary disease (COPD) patients under long-term inhaled corticosteroid therapy.

MATERIALS AND METHODS:

Pulmonary function tests were conducted on patients (n = 30) with COPD under inhaled corticosteroid therapy for at least 1 year. The results were compared to sex- and age-matched controls (n = 30). Analyses of blood gases were also carried out relative to COPD, and bone mineral densities (BMD) of the mandible, lumbar spine, femoral neck, trochanter, and Ward's triangle were also measured by dual-energy X-ray absorptiometry (DEXA). Levels of serum osteocalcin, alkaline phosphatase, calcium, phosphorus, and cortisol were also assessed.

RESULTS:

In accordance with the Global Initiative for Chronic Obstructive Lung Disease criteria, 8 of the COPD patients had moderate, 11 patients had severe, and 11 patients had very severe forms of the disease. All BMD measurements were lower in the COPD patients than in the control group. The serum osteocalcin levels in COPD patients were significantly lower than those in the control group (p < 0.0001). Serum calcium (p < 0.004) and cortisol levels (p < 0.026) in the COPD patients were also significantly lower than those in the control subjects. Although serum alkaline phosphatase level was higher and the phosphorus level was lower in the treatment group than in the control group, the differences were not statistically significant.

CONCLUSION:

Regular evaluation of the biochemical markers of bone metabolism and BMD would be helpful for detecting any detrimental changes of bone in COPD patients under long-term inhaled corticosteroid therapy. In this study, mandibular BMD was observed to be lower in COPD patients under long-term inhaled corticosteroid therapy than in healthy subjects. Thus, dental implant treatment may require preventive measures in COPD patients under long-term inhaled corticosteroid therapy.