European Respiratory Society
Annual Congress 2013

Title: Relationship between pulmonary function and bone mineral density in the Korean national health and nutrition examination survey (KNHANES)

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Body: Objective: Osteoporosis is common in COPD patients. Relationship between osteoporosis and COPD has been reported in moderate and severe COPD patients, but there is no report in general population. The aim of this study is to investigate the correlation of BMD with lung function in general population of Korea. Method: This study was based on the data acquired in the Fourth to Fifth KNHANES, conducted from 2008 to 2010. The study population included 4506 subjects (age ≥50 years) who underwent both spirometry and BMD. We used data from dual-energy x-ray absorptiometry measurements of the total hip and spine BMD. The participants were divided into two groups by gender to correct the effect on BMD, and analyzed using multiple regression analysis. Results: The participants were comprised of 2012 (46.6%) male and 2404 (53.4%)female. All female participants were postmenopausal women. The BMD of femur neck, femur total, L-spine were associated statistically significant with age, BMI, PTH, ALP, daily intake of Ca and P, FEV1/FVC by simple linear analysis in both groups, and also BMD of L-spine with FEV1 (%) in male and BMD of femur neck with FVC(%) in female. After adjustment with age, smoking status, BMI, serum 25(OH)2D, PTH, ALP, daily intake of Ca and P, the BMD in both groups were associated statistically significant with age, BMI, PTH but not with FVC, FEV1, FEV1/FVC. Conclusion: These results indicate that decrease of BMD in femur neck, femur total, L-spine in the general population is not associated with obstructive lung disease but with other factors (age, BMI, PTH).