SUMMARY AND CONCLUSIONS

Chronic obstructive pulmonary disease (COPD) is a preventable and treatable disease state characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and is associated with an abnormal inflammatory response of the lungs to noxious particles or gases, primarily caused by cigarette smoking. Although COPD affects the lungs, it also produces significant systemic consequences.[149]

It has been recognized that COPD involves several extra pulmonary features, indicating that it is a systemic disease, and that one of the major systemic feature is osteoporosis, which is a systemic skeletal disease characterized by micro architectural reduction of bone tissue leading to a low bone mass, increased bone fragility and thereby increased fracture risk.[3]

Although osteoporosis is derived from multible causes such as, age, smoking, malnutrition, and steroid treatment, a systemic effect of COPD may contribute directly to occurrence of osteoporosis.[150]

Osteopenia is defined as a BMD between 1 and 2.5 SDs below the mean for young adults of the same sex ie, (the T score), while osteoporosis is defined as a BMD of > 2.5 SDs below the mean for young adults of the same sex.[75]

Different methods of BMD measurements can be used. Dual energy X-ray absorptiometry (DEXA) is currently the most frequently used and is accurate ,reproducible and involves very low doses of radiation.[5]

The aim of this study was to through light on the osteoporosis as a systemic effect of COPD and its prevalence in different COPD degrees,

with correlation of the severity of osteoporosis according to COPD degree.

This study was conducted on 50 patients with COPD and 10 healthy subjects as a control group; they were selected from Al- Mahalla Chest Hospital from December 2009 to April 2010. Age of COPD group ranged from 40 to 68 years, they were all males; while age of the control group ranged from 40 to 55 years, they were all males also.

All subjects were subjected to; detailed clinical history, thorough clinical examination, plain chest-X-ray postero-anterior view, ventilatory function tests (spirometry), blood sample for complete blood picture, ESR, liver & renal function tests , and measurement of bone density by using DEXA.

The results of this study revealed highly significant reduction of most ventilatory function tests in COPD group in comparison with the control group.

BMI revealed significant reduction in COPD group in comparison with the control group.

As regards osteoporosis, its prevalence in total COPD group was higher than control group and reached 26%, while osteopenia reached 54%.

Comparison between the COPD degrees as regards BMD revealed that, prevalence of osteoporosis increases with the increase of the severity of COPD from moderate to severe then very severe.

Highly significant statistical correlation was found between T score and FEV1% in COPD group revealing that osteoporosis severity increases with the increase of the severity of COPD.

CONCLUSIONS

- A significant reduction of most ventilatory function tests were found in COPD cases.
- A significant reduction in BMI were found in COPD cases.
- Prevalence of osteoporosis was higher in COPD patients.
- Prevalence and severity of osteoporosis increased with the increase of COPD degree.

RECOMMENDATIONS

- It is important to screen COPD patients for osteoporosis in order to initiate treatment for the disorder before they develop fractures.
- Further studies are needed to determine whether in COPD patients with less severe respiratory disease, there is also increase in frequency of osteoporosis or not and subsequently determining the need for prevention of bone loss in this population.