

## Anemia in COPD patients and its relation to serum levels of erythropoietin

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[View references \(۳۴\)](#)

### Abstract

**Background:** Although chronic obstructive pulmonary disease (COPD) is traditionally associated with polycythemia, its systemic inflammatory components can interfere with erythropoietin and result in anemia of chronic disease. We assessed the frequency of anemia and its relation to serum erythropoietin (EPO) levels and severity of the disease in a group of COPD patients. **Materials and Methods:** Eighty patients with the mean age of  $66.48 \pm 11.00$  years and mean forced expiratory volume in first second (FEV<sub>1</sub>) of  $40.14 \pm 16.88$  % predicted were enrolled in this study. Severity of the disease was defined according to the global initiative for chronic obstructive lung disease (GOLD) guidelines. Hemoglobin and erythropoietin levels were assessed in all patients. **Results:** Anemia of chronic disease was present in 12 of 80 patients (15%). The mean serum levels of EPO were  $29 \pm 20.3$  (SD)  $\mu$ /l and  $70.3 \pm 200$  (SD)  $\mu$ /l in anemic and nonanemic COPD patients, respectively. There was no significant difference between the two groups ( $p=0.13$ ). A significant correlation was seen between hemoglobin and serum EPO in all COPD and nonanemic patients ( $r = -0.86$ ,  $p < 0.001$  and  $r = -0.28$ ,  $p = 0.02$ ). No significant correlation was seen between hemoglobin and serum erythropoietin levels in the anemic group ( $r = 0.07$ ,  $p = 0.82$ ). **Conclusion:** This study showed that anemia occurred relatively frequently in COPD patients. In addition to erythropoietin resistance, other factors are probably involved in the pathogenesis of anemia in these patients. ©2009 NRITLD, National Research Institute of Tuberculosis and Lung Disease.

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