

Value of C - Reactive Protein Measurements in Exacerbations of Chronic Obstructive Pulmonary Disease

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Abstract

Background The acute phase protein, CRP, when elevated, provides good evidence of an active tissue-damaging process. Thus; its measurement provides a simple screening test for active organic disease. Increased CRP production is a very early and sensitive response to most forms of bacterial infection..

Objective was to ascertain whether infective exacerbations of chronic obstructive pulmonary disease (COPD) and their successful treatment correlate with corresponding changes in CRP level.

Methods Fifty Patients (age 65 ± 6 years) diagnosed as COPD on the basis of clinical history and pulmonary function test were enrolled into the study. All those were admitted to Al-Kadhimiya Teaching Hospital because of clinical exacerbations of their condition. Serum samples were obtained on admission from the patient for measurement of CRP and full blood count together with sputum sample for microbiological diagnosis (especially culture). CRP measured by semi quantitative method, the cutoff point of this test is 0.6 mg/L. So all positive values were ≥ 1.2 mg/L. All these patients with exacerbations were treated by conventional treatments. Blood samples for CRP, full blood count and forced expiratory volume in 1st second (FEV1) were repeated 4-5 days thereafter.

Results The levels of CRP were elevated ≥ 1.2 mg/L in 27 patients who were positive for bacterial culture. The average CRP level after adequate treatment was highly decreased (p value < 0.001). There was a significant improvement in their measured FEV1 (p value < 0.001). The peak CRP level and fall in CRP were significantly correlated with both the corresponding peripheral blood smear white cell count ($r=0.57$, p value < 0.001) and the correlation Coefficient between CRP and FEV1 was ($r=-0.45$, p value < 0.001).

Conclusions Since patients with acute exacerbations of COPD had their CRP levels elevated initially and had clinical improvement with lowering of the CRP levels after treatment, there is a strong possibility that CRP is a marker of exacerbation of COPD. We suggest that, in exacerbation of COPD, CRP estimation provides a useful and inexpensive early marker of the exacerbation and provides a useful guide to assess the efficacy of treatment.

Key words C, reactive protein. Chronic obstructive pulmonary disease with exacerbation.

Introduction

Chronic obstructive pulmonary disease (COPD) is defined as a disease state characterized by the presence of airflow

obstruction due to chronic bronchitis or emphysema.