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Role of inflammatory biomarkers in chronic obstructive pulmonary disease

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Purpose: Chronic obstructive pulmonary disease (COPD) is a multicomponent disease. There is a need for biological markers for better evaluation of patients with COPD. We tested the hypothesis that elevated levels of inflammatory biomarkers fibrinogen, C-reactive protein (CRP) and leukocyte count (WBC) in individuals with stable COPD are associated with an increased risk of exacerbation.

Patients and methods: Ninety-eight COPD patients diagnosed and classified as COPD and 30 age and gender matched healthy subjects with normal pulmonary function were observed. Patient follow-up was performed to evaluate the strength of the associations between inflammatory biomarker levels and future outcome.

Results: Inflammatory biomarkers increase with exacerbation compared to the remission state, mean WBC, CRP and fibrinogen at $12.212 \times 10^9/L$, 39.462 mg/L and 5.09 g/L in exacerbation respectively compared to $7.877 \times 10^9/L$, 4.142 mg/L and 2.299 g/L in remission with P values <0.001 , <0.001 and <0.004 , respectively. Statistically significant correlation was noticed between the levels of fibrinogen and the % predicted FEV1 ($r=0.209$, $P=0.038$) however CRP and WBC did not correlate with % predicted FEV1 ($r=-0.031$, $P=0.765$) for CRP, and that for WBC ($r=0.125$, $P=0.221$).

Conclusion: Elevated levels of CRP, fibrinogen and leukocyte count in individuals with COPD were associated with increased exacerbation risk.

Clinical Implications: Inflammatory biomarkers hold promise for improving the understanding of the complex mechanisms propagating COPD exacerbation. Fibrinogen in particular has emerged as a potentially useful biomarker and requires further investigation.

Biography

Ola Alkady completed education at *Sohag University in Egypt*. Currently researching on *Chronic obstructive pulmonary disease (COPD)* is a multicomponent disease.

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