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Predictive role of serum Il-10 and Il-22 levels in airway remodeling among elderly patients with cough variant asthma

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Objective: This study aims to explore the correlations between serum levels of interleukin-10 (IL-10), interleukin-22 (IL-22), and tumor necrosis factor-alpha (TNF-α) and the extent of airway remodeling in patients diagnosed with cough variant asthma (CVA).

Methods: A total of 150 patients diagnosed with CVA were enrolled from the Department of Critical Care Medicine at our institution between January 2023 and January 2024, including 80 with moderate and 70 with severe disease severity. We collected comprehensive clinical data from these individuals and analyzed the correlations between serum levels of IL-10, IL-22, and TNF-α, and the degree of airway remodeling. The predictive utility of these biomarkers for assessing airway remodeling severity was also evaluated.

Results: Patients in the severe group displayed lower median serum concentrations of IL-10 (14.81 pg/ml), IL-22 (29.56 pg/ml), and TNF-α (35.64 pg/ml) compared to the moderate group, which had levels of 16.78 pg/ml, 32.56 pg/ml, and 39.38 pg/ml, respectively. Notably, these differences were statistically significant (U = 4.887, 6.289; P < 0.01). Comparison of pH, SaO2, PaO2, PaCO2, FEV1, forceful lung capacity (FVC), and maximal expiratory flow rate (PEF) between the two groups showed no statistically significant differences (all P>0.05). Serum levels of IL-10, IL-22, and TNF-α negatively correlated with airway remodeling severity (r = -0.398, -0.568, -0.461; P < 0.01). The area under the curve (AUC) values for IL-10, IL-22, and TNF-α as individual predictors of severe airway remodeling were 0.801, 0.812, and 0.821, respectively. The combination of these biomarkers improved predictive accuracy, with the highest AUC observed for the IL-10 and TNF-α combination at 0.848.

Conclusion: Serum levels of IL-10, IL-22, and TNF-α are inversely associated with the degree of airway remodeling in patients with CVA, indicating their potential as biomarkers for predicting the risk of severe airway remodeling.

Keywords: Serum IL-10, IL-22, TNF-α levels; Cough Variant Asthma; Airway Remodeling; Predictive Biomarkers

Biography

Yishan Dong, affiliated with Chongqing University Jiangjin Hospital, focuses on research related to elderly patients with cough variant asthma. Dr. Dong's work aims to improve diagnostic methods and treatment strategies, enhancing care for this vulnerable patient population.