The dynamic of IL-4 and 6 in Asthma and COPD at Jamot Hospital in Yaounde

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INTRODUCTION: Asthma and chronic obstructive pulmonary disease (COPD) are very common inflammatory diseases of the airways. Although spirometry is considered standard for the diagnosis of these diseases, it has a limit of 35%. Interleukin-4 and interleukin-6 are cytokines involved in the pathogenesis of these diseases. However, their role in biological diagnosis is less elaborate. Our objective was to assess the role of IL-4 and IL-6 in patients with asthma and COPD.

METHOD : We conducted a descriptive cross-sectional study over a six-month period from July 2022 to December 2022. Participants were recruited at the Jamot Hospital in Yaoundé under the guidance of a pulmonologist. A volume of 5ml of blood was collected in an EDTA tubes. The determination of IL-4 and IL-6 was carried out by ELISA at the Centre for the Study and Control of Communicable Diseases (CECMT) of the University of Yaoundé I. Our data was entered into Microsoft Excel and analyzed by GRAFPAD PRISM 5.0. For any $p<0.05$, the difference was statistically significant. The confidence interval (CI) was set at 95%. Differences and comparisons were made using nonparametric Mann-Whitney and Kruskal-Wallis tests; correlations were assessed using Pearson's testing.

RESULTS: Of the 84 participants recruited, 54 (64.3%) were men and 30 (35.7%) were women with an average age of 41.83 ± 21.2 years. IL-4 and IL-6 were elevated in asthmatic and COPD patients compared to controls (non-asthmatic, non-COPD) with p-values equal to 0.0009 and 0.0001, respectively. A significant difference in IL-4 levels was observed between asthma and COPD patients ($p=0.036$). Similarly, there was a significant difference in IL-6 levels between asthma and COPD patients with a $p=0.0001$ value. An inverse and non-significant correlation between IL-4 and 6 levels in asthma with $r = -0.17$ $p = 0.25$ was observed. In contrast, there was a non-significant correlation in COPD patients with $r = 0.14$ and $p = 0,35$.

CONCLUSION: IL-4 was elevated in asthma patients compared to those with COPD while IL-6 was rather high in patients with COPD compared to asthma patients. In view of these results, IL-4 and IL-6 could be combined with spirometry for the diagnosis of asthma and COPD respectively

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