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Neutrophil chemotaxis in acutely infected and clinically stable cystic fibrosis patients

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Abstract: Brochopulmonary infection in cystic fibrosis (CF) patients is associated with chronic progressive lung disease. The role of host factors, such as neutrophil functions, in the progressive pathologic processes in the respiratory tract of these patients, is poorly defined. Neutrophil chemotaxis is one of the first mechanisms of host defense to become activated after bacterial invasion has occurred. This study was aimed to evaluate the role of neutrophil chemotaxis in CF and also to determine whether an acute bacterial infection and the nutritional status can affect neutrophil chemotaxis or not. Twelve acutely infected and 12 clinically stable CF patients and 10 healthy age-matched controls were studied. Neutrophil chemotaxis and random migration were investigated in-vitro in the peripheral blood of the subjects by the Boyden-chamber method and the results were expressed as chemotactic index (CI). The nutritional status of the cases was evaluated as basal mass index (BMI). The CI values in the acutely infected group were found to be significantly lower than the clinically stable and the healthy control groups ($p<0.05$ and $p<0.05$, respectively). There was no significant difference between the clinically stable CF group and the healthy control group ($p>0.1$). No significant correlation was detected between the CI and BMI of the two groups of CF patients ($p>0.05$). The present study confirms that neutrophil chemotaxis and random migration are normal in clinically stable CF patients. The decreased CI in acutely infected patients indicates the possible role of infection itself on neutrophil chemotaxis.

Key Words: Cystic fibrosis, neutrophils, chemotaxis

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