

The Role of Phagocytosis Deficiency in Adults with Non-Cystic Fibrosis Bronchiectasis

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RATIONALE. Bronchiectasis (B) is a chronic respiratory disease accompanied by recurrent respiratory tract infection. The measurement of total serum IgG, IgA and IgM is recommended as a routine "bundle" of tests at diagnosis to identify possible underlying causes of B by the "European Respiratory Society guidelines for the management of adult bronchiectasis". The study aimed to identify the prevalence of immunodeficiency associated with a decrease in the total immunoglobulins levels and to determine the significance of phagocytosis in the development of chronic colonization of the respiratory tract in patients (pts) with B. **METHODS.** 55 pts with confirmed B by HRCT were included in the study during the stable phase. Serum IgA, IgM, IgG were measured by immunoturbidimetry method. Phagocyte number and phagocytic activity were measured by flow cytometry. Microbiological detection of sputum samples were conducted by conventional bacteriological methods. The methods of descriptive and non-parametric statistics were used to process the results. **RESULTS.** Depending on the presence of sputum colonization by pathogens, the pts were divided in two groups: G1 - with sputum colonization (n=37) and G2 - without detected pathogens in sputum culture (n=18). There were no differences in groups by gender and age ($p=0.33$ and $p=0.05$ respectively). The levels of total serum IgA, IgM, IgG were measured in all pts and we did not detect a decrease in the level of any of the immunoglobulins. Then we determined the phagocyte number and phagocytic activity levels in eight pts from G1 and in six pts from G2. Results are presented in the table.

Indicator	G1 (n=37)	G2 (n=18)	p-value
IgA (Me(25%;75%))	3.55 (2.6;4.8)	2.56 (2.1;3.84)	0.07
Increased level of IgA (n(%))	15 (40.5%)	5 (27.8%)	0.37
IgM (Me(25%;75%))	1.92 (1.15;2.82)	1.64 (1.19;2.77)	0.71
Increased level of IgM (n(%))	15 (40.5%)	6 (33.3%)	0.62
IgG (Me(25%;75%))	13.46 (10.9;15.2)	11.35 (10.01;13.2)	0.08
Increased level of IgG (n(%))	1 (2.7%)	1 (5.6%)	0.61
	G1 (n=8)	G2 (n=6)	p-value
Phagocytic activity (Me(25%;75%))	32 (30;38.5)	48,5 (45;50)	0.03
Decreased phagocytic activity (n(%))	6 (75%)	0 (0%)	0.002
Phagocyte number (Me(25%;75%))	3.15 (2.95;3.45)	4,4 (4.2;4.5)	0.008
Decreased phagocyte number (n(%))	8 (100%)	1 (16.7%)	0.009

CONCLUSIONS. Among the examined patients there were no cases of immunodeficiencies associated with a decrease of total serum immunoglobulins and their levels did not statistically differ in the groups with and without sputum colonization with pathogens. All patients with B and chronic sputum colonization have a reduced number of phagocytes, and the majority of them have low phagocytic activity. Following results obtained, a routine study of the state of innate immunity is recommended for all patients with B to predict the likelihood of chronic sputum colonization and for further correction of therapeutic tactics.

This abstract is funded by: None