

Assessment of Systemic Inflammation and Asthma Control in Asthma Patients with Elevated BMI

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Background

Systemic inflammation may impact asthma in patients who have concurrent overweight and obese (Ob) status.

Method

72 patients with asthma with overweight and Ob status (Group 1) were compared to 43 patients with non-overweight or Ob asthma (Group 2). All patients had uncontrolled moderate persistent asthma. 20 healthy subjects served as the control group. Clinical assessment included general clinical blood tests, lipid spectrum, the level of eosinophil cationic protein (ECP), and the level of C-reactive protein. The composition of the body was assessed by impedance measurement, assessing the percentage ratio of fat and lean body mass index. Asthma assessments included peak flow and questionnaires including the Asthma Control Test (ACT), and a physical activity assessment test.

Results

100% of the patients of Group 1 were overweight or obese (BMI 32.69±0.72 kg/m²). 100% of patients in Group 2 had a normal body mass (BMI was 21.67±0.35 kg/m²). Patients in the comparison group had an average BMI of 20.95±0.47 kg/m². A correlation was established between BMI and the severity of the course of asthma ($r = 0.71$), $p < 0.001$. Patients in Group 1 had a significantly higher level of ECP, 33.11±4.49 ng/ml versus 16.6 4±2.11 ng/ml in Group 2, and 10.15±1 ,12 ng/ml in the control group ($p < 0.001$ and $p < 0.001$, respectively). The results of the ACT test in patients of Group 1 was 9.98±0.99 points, and in patients of Group 2, was 17.54±0.69 points. A direct correlation was established between the severity of the course of asthma and levels of ECP ($r = 0.71$; $p < 0.05$).

Conclusion

Uncontrolled asthmatic overweight and obese patients have a higher level of eosinophilic cationic protein than patients with a normal body mass index, a more severe course of asthma and more systemic inflammation, which may affect the control of their asthma.

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