

Summary of the MSc thesis No 11924, Faculty of Veterinary Medicine, Urmia University.

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Title of thesis: Comparative study of IgE - CRP - CBC (Eos) - ESR and Vitamin D tests in patients with Asthma in – Ardabil Imam Khomeini Hospital

Summary: Asthma is a chronic inflammatory disease of the airways in which many cells, especially mast cells, eosinophils, and lymphocytes, play a role. The interaction between FC9 surface receptors and allergen-specific IgE plays an important role in the pathogenesis of atopic asthma. Asthma is part of the increased sensitivity of TB, which was aggravated by increasing respiratory infections such as coronavirus. Possible indications involved in asthma studied in this research are IgE - CRP - CBC (Eos) - ESR and vitamin D.

Materials and methods: Blood samples of 100 asthma patients were obtained from outpatients and inpatients referred to Imam Khomeini Hospital (RA) in Ardabil. The sample was prepared in two ways: (a) one sample was a mixture of blood and anticoagulant for measuring CBC and ESR and (b) one sample was clotted blood to prepare serum for vitamin D, IgE, and CRP tests. The data were statistically analyzed using SPSS v20.

Findings: Among the patients, 57 (57%) were male and 43 (43%) were female. Vitamin D3 in people with asthma is lower than 20 ng/dL in 55% of patients, the average level of vitamin D in asthmatic people is 18.80 ± 9.93 ng/dL. There is no relationship between the level of vitamin D and the amount of eosinophilia in asthmatics and it is not significant ($p=0.07$). As the levels of vitamin D increase, the level of IgE decreases, which is a significant relationship between the increase of vitamin D and the decrease of IgE ($p=0.03$). The vitamin D level of the patients at the beginning of the treatment system was on average 18.00 ng/dL, which was not significant ($p=0.26$). The vitamin D level of the patients after one treatment period was on average 50.00 ng/dL, which is significant ($p=0.005$). The overall average ESR of patients was 23.10 ± 12.09 , 50% of asthmatic patients had negative CRP test.

Conclusion: The results show that vitamin D is important as a very important supplement in reducing asthma as well as the symptoms of asthmatic patients and the response to the treatment of these patients, therefore, the measurement of vitamin D along with IgE and CBC (Eos) in Asthma patients are important. There was no significant correlation between the level of vitamin D and the number of WBCs, ESR, EOS, and CRP, but there was a significant correlation with IgE and checking the level of vitamin D after the treatment period and re-visit.

Stimulating the differentiation of immune cells, increasing the xenophagy power of macrophages, and increasing the production of antimicrobial peptides such as cathelicidin and betadefensin by vitamin D in the lung increases the ability of the immune system to deal with respiratory infections, including coronavirus. Vitamin D also reduces excessive secretion of inflammatory cytokines.

Key words: Asthma, Vitamin D, IgE, CBC (EOS), CRP, ESR