Vitamin D may contribute to development of asthma

Asthma is a chronic inflammatory airway disease, which development mechanism has not been fully investigated yet. Despite the progress of medical science in asthma field, morbidity of this disease remains high worldwide. Scientists raise hypothesis that vitamin D may be involved in development of asthma. Vitamin D is a fat-soluble nutrient, which is the best known as key factor in bone mineralization. However, scientific literature reveals wider role of vitamin D.

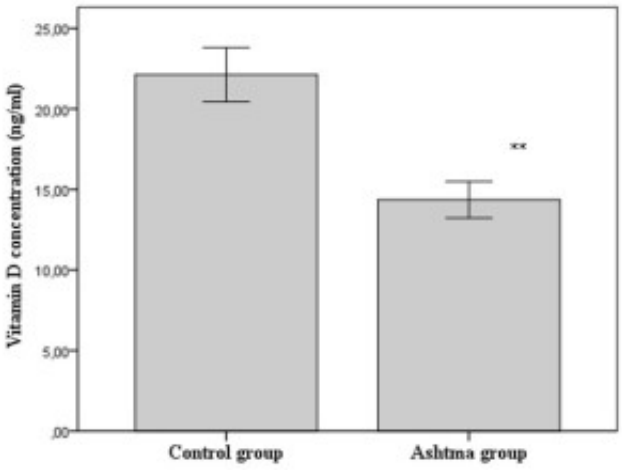

Fig. 1. Vitamin D concentration in serum from patients with asthma and healthy subjects
**p less than 0.01 compared to control group

We aimed to compare serum vitamin D level between asthma patients and healthy subjects and assess correlation between vitamin D level and allergic and smoking status, lung function and body mass index in asthma patients.

Our study involved 158 individuals over 18 years old. Out of them, 85 patients were asthmatics and 73 healthy individuals. For the evaluation of vitamin D level, measurement of concentration of 25(OH)D3 has been chosen because it shows a store of vitamin D in the body more accurately than an active form of vitamin D and is metabolised only in the liver. Blood samples for vitamin D measurement were collected during late autumn and winter (October, November and December) in order to avoid influence of sun exposure.

We found that all studied subjects had a lower vitamin D level than recommended norms. Vitamin D level was significantly lower in asthmatics than in healthy individuals, but it did not differ between allergic and non-allergic asthmatics as well as between smokers and non-smokers with asthma. We estimated that low vitamin D level increases asthma risk 1.2 times. In asthma group vitamin D levels did not correlate with lung function and allergy markers (eosinophil count and total

immunoglobulin (Ig) E level). We estimated that body mass index had impact on vitamin D level: high body mass index was related to low vitamin D level.

Our study reveals that vitamin D level is significantly lower in patients with asthma than healthy subjects and has a link with body mass index, but a lack of this vitamin is not related to allergic status of these subjects. We can suggest that lack of vitamin D increases risk of asthma development in 1.2 times. Thereby data from our research suggest that vitamin D may play an important role in development of asthma.

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Publication

Evaluation of vitamin D levels in allergic and non-allergic asthma.
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