VITAMIN D METABOLISM DISTURBANCES: ONE MORE EXTRAPULMONARY EFFECT OF SYSTEMIC INFLAMMATION IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Abstract

The aim of this study was to determine the impact of chronic obstructive pulmonary disease (COPD) on vitamin D metabolism.

Materials and methods. 71 COPD patients were examined during the autumn-winter (September-December) period. The average age of patients was (53,59 ± 12,83) years. There were 40 men (56,34 %), 31 women (43,66 %).

The content of total vitamin D, pro-inflammatory cytokines (interleukin 1-β; and tumor necrosis factor-α (TNF-α)), middle molecular weight polypeptides, leukocyte index of intoxication, fibrinogen were determined.

Results and discussion. Vitamin D deficiency was diagnosed in all COPD patients; severe form occurred in 49.29 % of cases. No differences were found in vitamin D indices depending on sex and smoking status of the patients. More severe vitamin D deficiency was associated with advanced stage of COPD. In stage IV COPD patients vitamin D level was 1,75 times lower than in stage I patients.

Significant negative correlation was established between the concentration of vitamin D and leukocyte intoxication index ($r = -0,50$, $p < 0,05$), the content of middle molecular weight polypeptides ($r = -0,39$, $p < 0,05$), interleukin 1-β ($r = -0,37$, $p < 0,05$), the TNF-α ($r = -0,41$, $p < 0,05$) and fibrinogen level ($r = -0,69$, $p < 0,05$).

Conclusion. These results suggest that vitamin D deficiency/insufficiency is a result of chronic systemic inflammation in COPD.

Key words: chronic obstructive pulmonary disease (COPD), deficiency of vitamin D, systemic inflammation.

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