

# INFLAMMATION, HYPOXIA, AND ANEMIA IN PATHOGENESIS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE: LITERATURE REVIEW AND OWN RESEARCH

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## *Abstract*

The *aim* was to highlight the leading links of pathogenesis of chronic obstructive pulmonary disease (COPD) using published data and the results of own research.

*Material and methods.* The publications of the last 5 years have been picked up for review from *Pubmed* library. Own research has been based on retrospective analysis of medical records from 470 patients with COPD (246 men and 224 women, median age 62 years).

*Results.* According to literature data chronic persistent inflammation, manifesting by activation of multiple cells with excessive production of number of biologically active substances, is a leading link of COPD pathogenesis. Second important link of COPD pathogenesis is energy-dependent hypoxia with signalling pathway change and super expression of hypoxia-inducible factor. An important role plays chronic disease anaemia, occurring due to effect of pro-inflammatory cytokines and hypoxia-inducible factor which, in turn, preserves inflammation and hypoxia. According to own data a decrease of blood oxygenation and decline in lung function also testify to existing relationship between inflammation and hypoxia. Active inflammation correlated with decreased bronchial patency. Anaemic syndrome in COPD patients was associated with higher levels of neutrophils, ESR, C-reactive protein, total fibrinogen, seromucoids and integral haematological indices, as well as low blood oxygenation and decrease of velocity parameters of lung function.

*Conclusion.* Inflammation, hypoxia and anaemia are three connected links of pathogenesis of COPD, which create vicious circle and possibly determine disease progression.

**Key words:** chronic obstructive pulmonary disease, pathogenesis, inflammation, hypoxia, hypoxia-inducible factor, anaemia.

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